Smithsonian

November 1986

Art beneath the ice (p. 168)

Here, dwarf heavenly bamboo leaves create a frozen still life

Eenie, Meenie, Miney, Mo.

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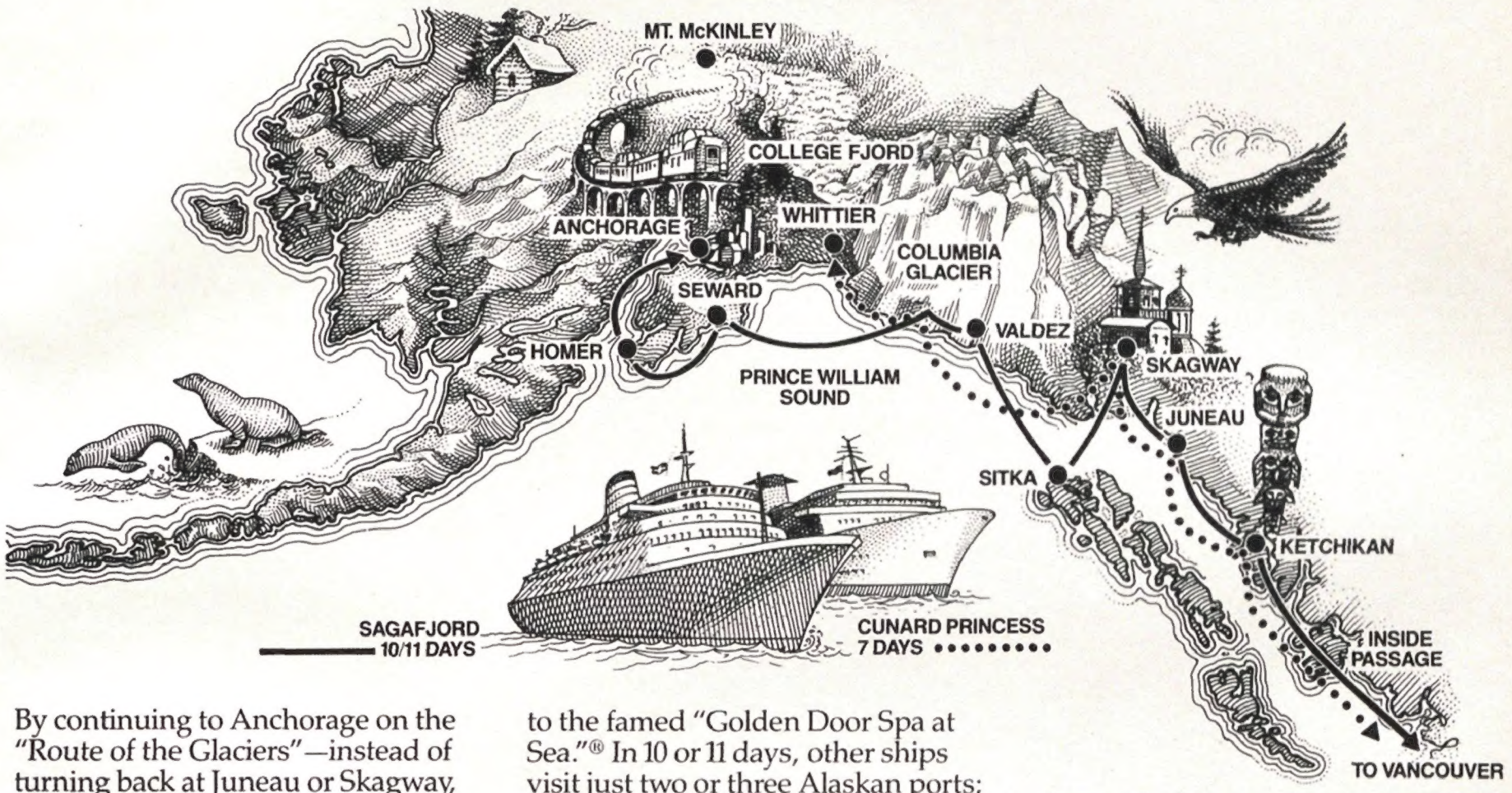

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November 1986

Smithsonian

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Smithsonian (ISSN 0037-7333) is published monthly by the Smithsonian Associates, 900 Jefferson Drive, Washington, DC 20560.
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Subscription price $20 a year in U.S. possessions, $30 elsewhere.
80 percent of dues is designated for magazine subscription. Single copy price, $2.50. Second-class postage paid at Washington, DC, and additional entry points.
Editorial offices, 900 Jefferson Drive, Washington, DC 20560.
Advertising and circulation offices at 420 Lexington Ave., New York, NY 10170.
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Just as electrons can carry information through the transistors of a circuit, they can also make noise. And, as circuits get smaller, noise becomes more of a factor, even to the point of "drowning out" the information.

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To ensure that smaller will continue to mean better, AT&T sought a new way to isolate, understand and control electron noise.

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This micro-laboratory makes it possible to segregate, manipulate and "tune-in" on individual electrons. (Listening to electrons one at a time is like listening to the clapping of one person in the crowd at the Olympics.) By studying electron flow at this minuscule order of magnitude, AT&T has produced some fundamental revelations about the sources of circuit noise.

The Rocks In The Rapids

As electrons move through the narrow circuit, they behave both like waves and like particles. The particles can be troublemakers. Some produce obstacles in the form of charged atoms—atomic "rocks" that create disruptions in the flow of current, much the way rocks create the "rapids" in a stream.

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Identifying the source of electron noise is a big step toward removing it. But, AT&T is already working on the next step—experimentally altering the nature of atomic obstacles to reduce their effects.

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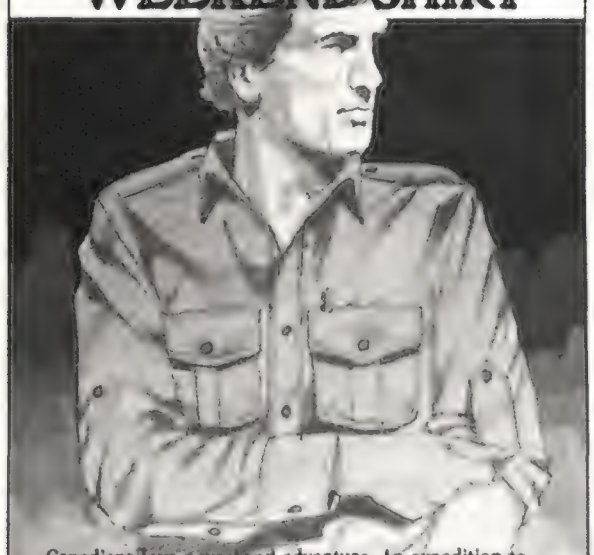

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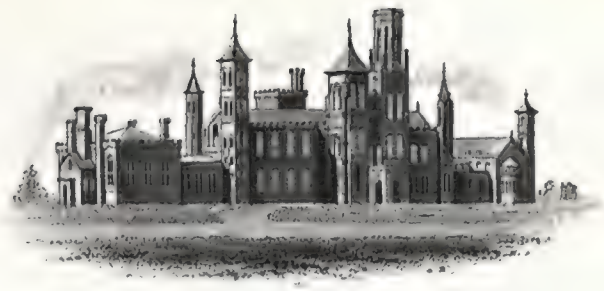
Secretary Adams' comments

Smithsonian horizons



A valuable economic and recreational resource, Chesapeake Bay is in trouble. The Smithsonian's findings may help

Chesapeake Bay is a vast body of water, our nation's largest estuary. It is an important industrial location and shipping artery, a prized scenic and recreational resource, and traditionally an unsurpassed habitat for oysters, blue crab, shad, the delectable striped bass or rockfish, and many other valuable species. Lee M. Thomas, administrator of the federal Environmental Protection Agency, rightly calls it "a national treasure."

But it is also in deep trouble, with its multiple uses burdening its sensitive ecological balances. Its sport and commercial fisheries bring nearly a billion dollars annually into the Maryland and Virginia state economies. But with the progressive loss of much of the Bay's aquatic vegetation, fishermen now are confronting steeply declining catches.

Public interest in a "Save the Bay" campaign has strongly supported the beginnings of remedial action along a number of fronts. But priorities are naturally contested in this era of deficits. The cost-effectiveness of some proposed corrective measures is admittedly uncertain, and in any case the inertia of traditional patterns of land use is hard to overcome. So the jury is still out on whether the converging, human-induced processes that are causing the degradation of the Bay can be arrested and ultimately reversed.

Begin with several million tons of pollutants from the entire drainage basin, the most dangerous of them settling to the bottom and deteriorating only slowly or not at all. Thousands of industrial facilities are their main source, many of them discharging directly into the Bay under a web of permits and regulations that is gradually tightening.

How rapidly should standards, inspections and penalties be escalated when these hard-pressed industries are major contributors to the region's employment and prosperity? Moreover, direct discharges are not the only source. Industrial toxics can escape monitoring by being diverted into municipal sewage-treatment plants, most of them incapable of chemically altering all such materials to render them harmless. Who will bear the responsibility and the cost of addressing this problem?

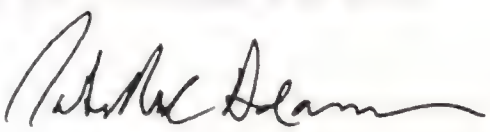
So-called nutrients appear to be an even greater contributor than toxic wastes to the overall deterioration of the Bay environment. High concentrations of phosphorus and nitrogen cause algae to proliferate, screening needed light from underwater vegetation and, as the algae decay, starving fish of oxygen. Banning phosphate detergents is a relatively simple step (Maryland and the District of Columbia have taken it), but of limited importance. Recent research introduces many uncertainties into the relative roles of phosphorus and nitrogen, and supports a much more costly effort directed at removal of the latter as well. And in any case, a landmark EPA study in 1983 assigned much greater weight to the runoff of chemical fertilizers and animal wastes from 24,000 Bay-area farms.

Half of Pennsylvania drains into the Susquehanna River, which provides half of the Bay's fresh water and 21 percent of its phosphorus load—more than three-fourths of it from farms. How much does "Save the Bay" mean to a farmer far upstream on the Susquehanna who has never seen the Bay, particularly if he is (like most) facing economic hardship and hence increasingly dependent on herbicides and fertilizer? On the plus side, Pennsylvania's cost-share program to help farmers improve water quality and control erosion on their land has been flooded with applicants.

In other words, all the Bay's major problems originate on the surrounding land and with the ever-growing population in the area. We own a small piece of it, the Smithsonian Environmental Research Center (SERC) at Edgewater. Here we carry on many forms of long-term experimentation and environmental monitoring in a representative mosaic of croplands, marshland, residential areas, and upland and bottomland forest. Those especially relevant to the pollution of the Bay are concerned with the effects of acid rain and agricultural herbicides and nutrients.

One recent finding of David Correll, who is in charge of SERC programming, is of potentially major importance to overcoming the problem of nutrient pollution. It involves the role of streamside forests on freshwater tributary streams. In carefully measured and controlled circumstances, 72 percent of the phosphorus and 79 percent of the nitrates in cropland surface runoffs, and 94 percent of the nitrates in the groundwater, were removed by these forests. Furthermore, essentially all of this removal took place in the first 20 yards of forest.

Do we dare to envision a different, forested landscape along a substantially greater part of the shores of the Bay? Admittedly, it is at best a long-term possibility, requiring legal measures and incentive structures that have not yet even been dreamed of. But a concern with very long-term problems and solutions is what the Smithsonian is all about.



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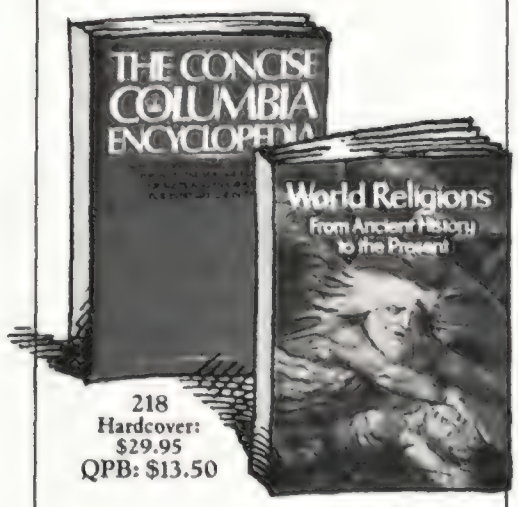

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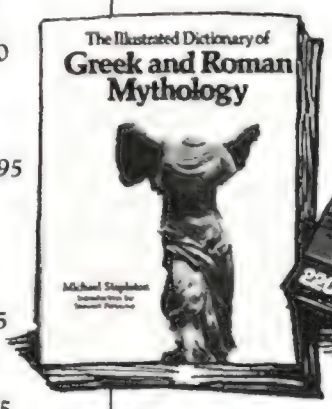

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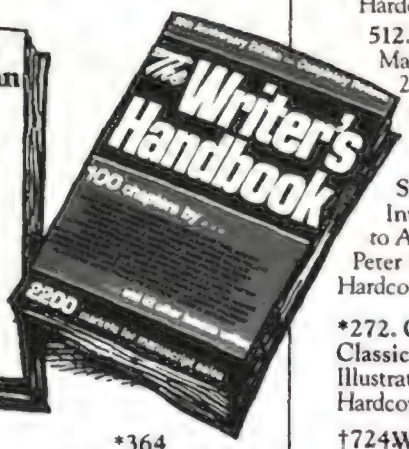

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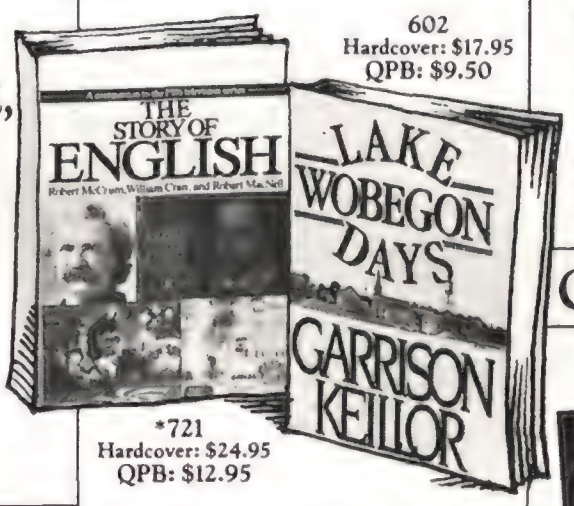

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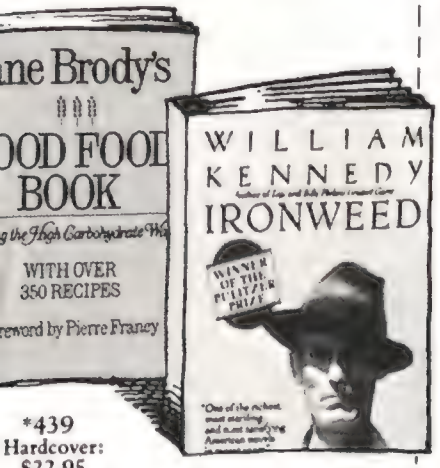

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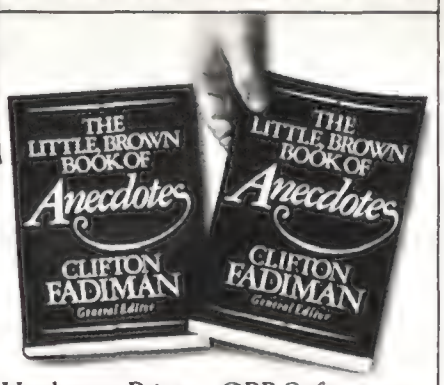

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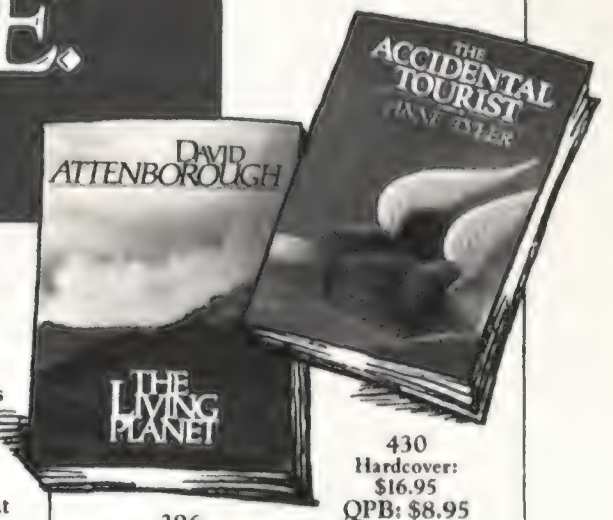

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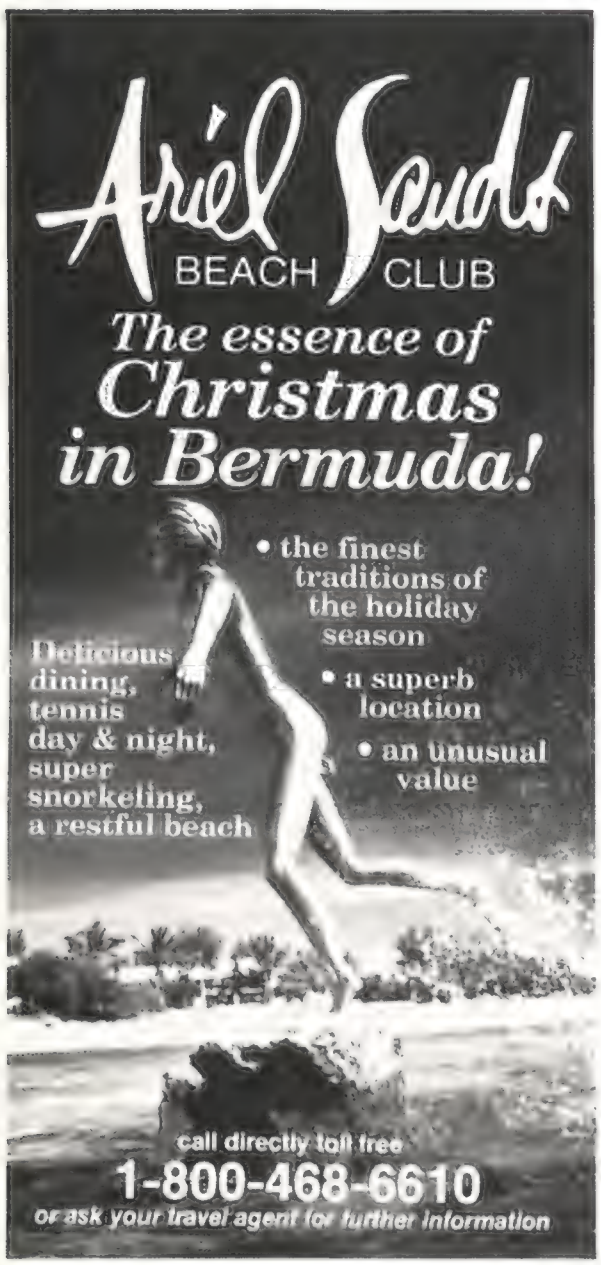
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Letters to the Editor

John Held jr.

Dear Sir: Your September article brought back with a happy hoot my college days in the Roaring Twenties. Working my way through a small Midwestern college clerking in a men's haberdashery, I may have had a finger . . . er, a leg . . . in spreading the popularity of those famous pants, the Oxford Bags, pictured on the cover. (It took me four years to pay back the store what I owed them on graduation, and to this day I am still a clotheshorse.)

Although not mentioned by the authors, I am sure many of your male readers remember them, along with the joke that "You could take two steps before they caught up with you."

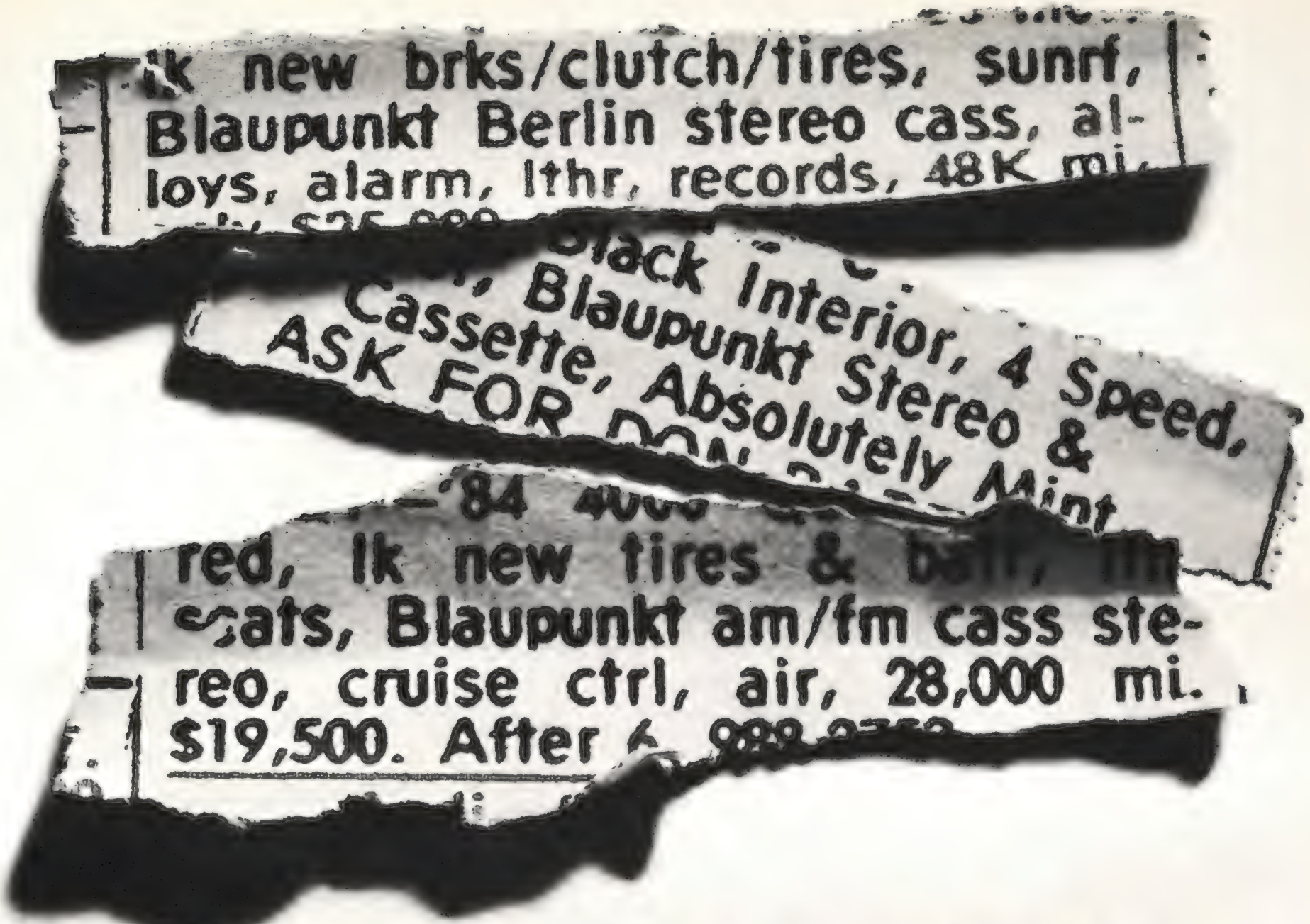
Howard M. Sage
Portland, Oregon

Dear Sir: Your article brought back pleasant memories, as I was a member of that generation. Mr. Held's drawings painted the scene very well; the basic theme of his art was the superior intelligence of the female over the male of those times.

G. F. Richardson
White Salmon, Washington

Dear Sir: John Held jr.'s "glittering years" came well before I was born, but when I read that later in life Held lived on a farm in New Jersey with an Irish water spaniel named Mr. Dooley, an immediate emotional chord was struck.

Mr. Dooley! Held immortalized his dog for me in a series of stories for children published in one of the women's magazines in the early 1950s. In the first one, "The tail of MR. DOOLEY," a baby chick mistakes Mr. Dooley's tail for a



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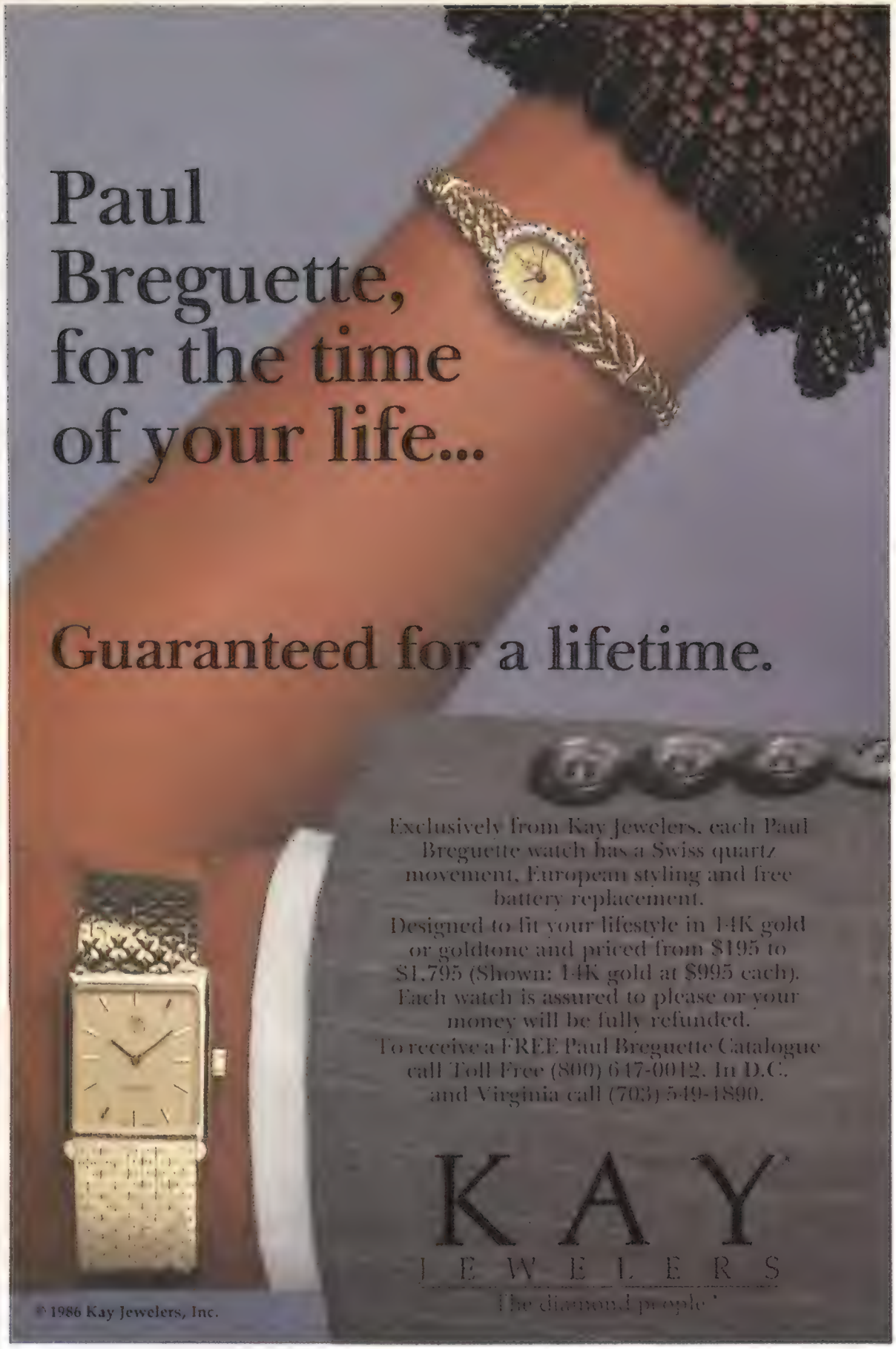
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large angleworm. Held's simple, colorful illustrations [above] delighted me as a child and continue to do so now. I still have three of the Mr. Dooley tales cut from the magazines, lovingly bound together with yarn.

I, too, have a dog who "does not know he is a dog" and who likes to "watch life go on" after he has gone "to the trouble of getting the sun up and the day started," as did Mr. Dooley in one of Held's stories.

Susan Meyers Sanders
Plainwell, Michigan

Dear Sir: As a survivor of the educational scene of the Twenties I appreciate the John Held jr. article, but I believe that you may be misconstruing the cover cartoon.

Remembering the standing joke of that time about the city slicker and the farmer's daughter, it seems to me that Joe College is not leaving "his hometown girl" behind. Rather, the situation is that of the college slicker who has been down on the farm for the summer, and is saying good-bye to the artist's fantasy of a milkmaid—hence the milk can and the dreamy version of an apron.

(The Rev. Dr.) Anne C. Garrison
East Lansing, Michigan

Could be. Mrs. Held tells us there were three watercolors of women with milk cans, which she believes must have illustrated a story—but the connection is now lost. Ed.

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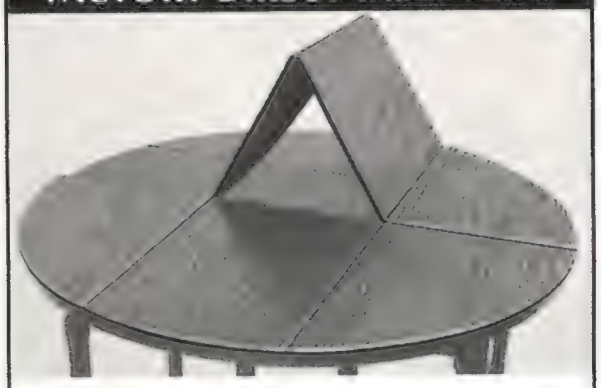

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Making hay

Dear Sir: Verlyn Klinkenborg aroused many memories, not the least of which had to do with a leguminous aberration of spoken English we children in Boone, Iowa, and other Midwestern towns used some 60 years ago. Its main purpose, preventing younger tads from understanding our conversations, beat the more common pig Latin by a country block.

We called this jargon Alfalfa talk, or just plain Alfalfa. One simply splits vowel sounds with "lf" combinations so that Mom, Dad and baseball become "Molfom," "Dalfad" and "Balfasebalfall."
Alfallelfen Kilfilbolfom,
a.k.a. *Allen S. Kilborn*
Richardson, Texas

Dear Sir: Your article arrived as we were in the midst of putting up our third cutting. We too have a New Holland 273 baler, but it is becoming more and more difficult to get help to bale. There are fewer farm families, with fewer boys willing and adequately muscled to lift bales onto the racks in the sun or to stack bales in the breezeless shed.

Our second cutting produced 2,500 square bales from 35 acres. Eventually we may be forced to abandon putting up our alfalfa in square bales in favor of a method requiring more machine and less manpower. Square bales are still the easiest way, if you can call handling each 55-pound bale a minimum of three times from field to feed bunk "easy."
Janis Paseka
Ames, Nebraska

Apples

Dear Sir: I'm prejudiced. I come from the fine apple-growing area in the Finger Lakes and believe the apples of New York State are certainly worthy of mention. Many interesting new varieties are sold at roadside fruit stands near Geneva, New York; even the farmers' markets in New York City have many varieties new to me.

I was eating a Paula Red while reading your article (much crunchier than Red Delicious). Let us hope such notice will encourage the grocery chains to try new varieties.
Alice Smith
New York City

Dear Sir: I live in an area where there is a revival of old homestead apple varieties developed by the late Albert Etter.

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13

"Tenderness" by Poul Ipsen from The Franklin Mint.

Then he said,
"Thank you again for saying yes."
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Greenmantle Nursery in Ettersburg is reintroducing, along with some of the older European and Eastern U.S. varieties, such wonderful apples as Waltana, Pink Pearl, Alaska, Etter's Gold, Wickson, Crimson Gold and Humboldt.

This area has many organic growers, commercial and homestead. So it was with horror and revulsion that I viewed your photograph of truckloads of apples being drenched with fungicide. That one picture says it all. I will never again buy a nonorganic apple.
Donna R. Fisher
Garberville, California

Dear Sir: The apple breeder, as one of my graduate school professors liked to say, must be an artist as well as a scientist. The artist must take a vision of the future and mold a plant to fit his vision, while the scientist must have a thorough knowledge of the science of plant breeding.

Another professor was fond of saying that we need better, not more, apple varieties. This suggests two more characteristics an apple breeder must have: patience and optimism. Often 20 to 30 years elapse from the time a seed is planted until the resulting tree is judged good enough to name. "Jonagold" was evaluated for 25 years before it was named and released to apple growers.
Patrick L. Byers, Research Specialist
University of Arkansas
Division of Agriculture
Clarksville, Arkansas

Dear Sir: The full-page photograph on page 122 captioned "Vertical sprinklers water blossoming apple trees. . ." is of pear trees. Peshastin, where the picture was taken (from in front of my house), is famous for its high-quality D'Anjou pears.
Ted Alway
Peshastin, Washington

Dear Sir: I take exception to your panegyric on the Red Delicious. It is indeed beautiful to the eye, but when it comes to flavor is practically tasteless. How irritating to find so much space devoted to praising this apple and only passing mention to the McIntosh, Cortland and Northern Spy, all of which are more flavorful. The last two are excellent cooking apples as well.
Elsie M. Watters
Beverly, Massachusetts

Dear Sir: What about those apples from Virginia? The Albemarle Pippin, pale yellow-green with a sprinkling of tiny black freckles, appealed so much to the

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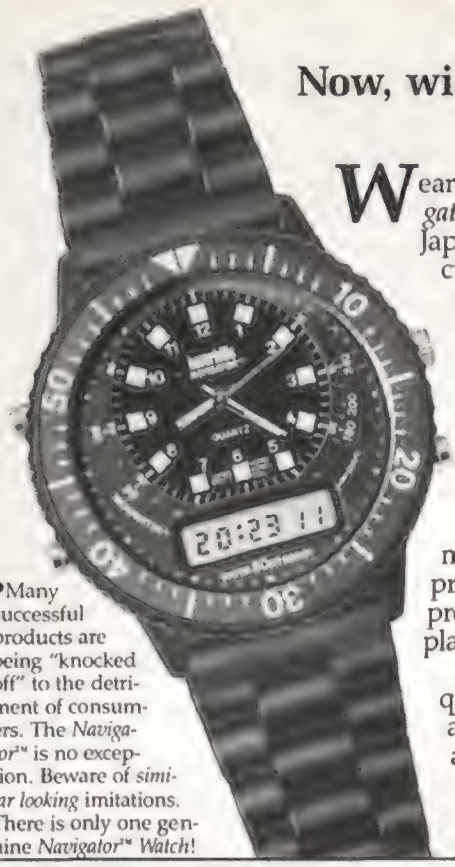

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taste of Queen Victoria, it is said, that she removed the import tax on it, to make it more accessible to her subjects. Truly, it *had* a flavor fit for a queen.
Mary B. Rowe
Owings Mills, Maryland

Japanese baseball

Dear Sir: In 1913 two American teams under the banners of the New York Giants and the Chicago White Sox played exhibition baseball in Japan, as part of a world tour. Players included Tris Speaker, Hans Lobert, Jim Thorpe.
Grace Crowe
Glen Cove, Long Island

The etymology of 'dibs'

Dear Sir: Michael Olmert's etymological research on "dibs" is all wrong.

If Billy and Johnny are walking down a street, kicking cans or rattling picket fences, and Billy spots a penny and picks it up, Johnny hollers "Dibs!" Then they repair to the candy store, buy some twofer or other and each consumes his piece. As everyone knows, "v" and "b" are interchangeable. "Dibs" simply means "divide." By hollering "Dibs!" Johnny establishes his right to divide the spoils.

However, if Billy hollers "Fen dibs!" and picks up the penny, he has undisputed, exclusive rights to it. The word "fen" in this context does not refer to a bog or a Scottish hole in the ground or any other esoteric natural feature. It derives from "fend," as in "fend off" or "defend." By hollering "Fen dibs!" first, Billy fends off division.

When I was nine I understood the meaning of these words very well, without any book larnin', as did every other nine-year-old of my generation.
Noah M. Lichterman
Missoula, Montana

Smile, Dr. Fuchs . . .

Dear Sir: To Paul Dickson's list of eponymous names should be added that of John Macadam, the Australian chemist for whom the macadamia nut is named.
James F. Kelly
Myrtle Beach, South Carolina
. . . and then there was John Loudon McAdam, a Scot who developed the compacted stone roadway, now bound with tar or asphalt, that bears his name. Ed.

Dear Sir: Those wide, deeply-notched collars and trim, pointed beards known as "Vandykes," sometimes sported by the

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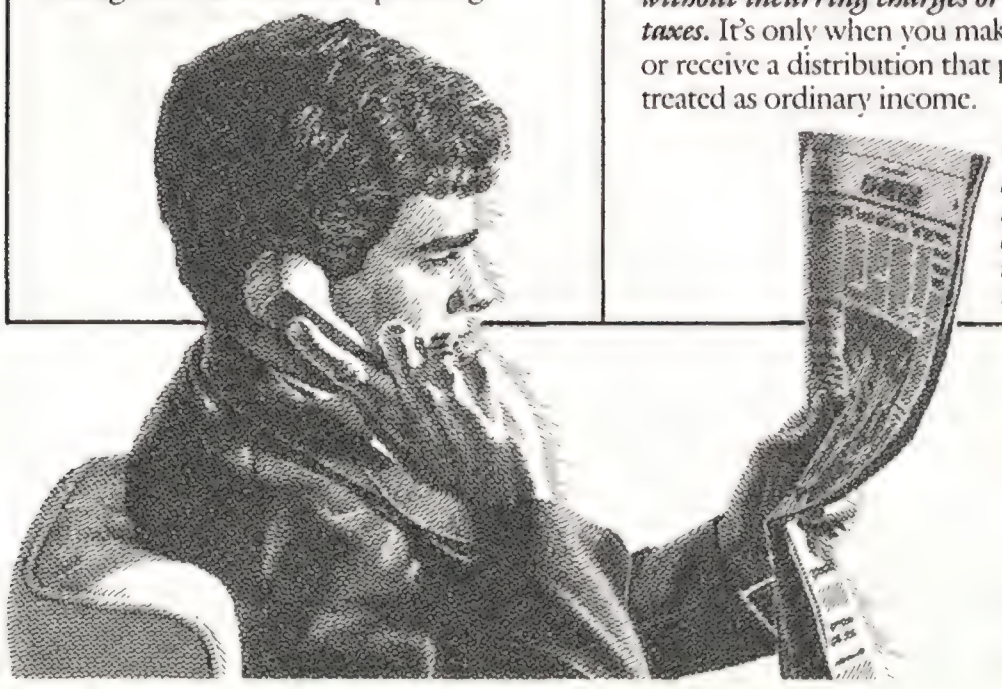

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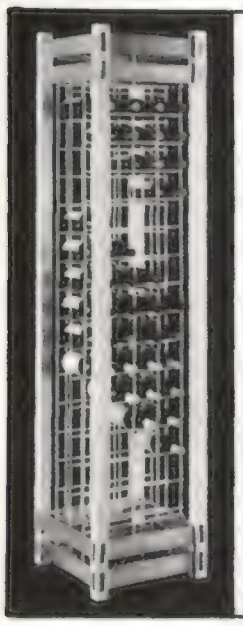

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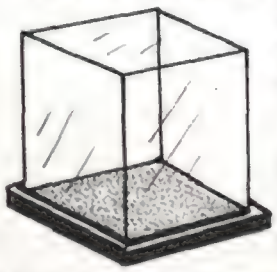

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elegantly attired or sartorially splendid, owe their names to counterparts in many of Sir Anthony Vandyke's 17th-century portraits. Then, the rag trade is indebted to FitzRoy James Henry Somerset, 1st Baron Raglan, for our description of a sleeve so in vogue recently (he it was who ordered Lord Cardigan to lead the fateful Charge of the Light Brigade). Also, there is Joel Roberts Poinsett, the diplomat who brought back from Mexico that lovely Christmas flower, the poinsettia.
Julia Darby
San Francisco

Dear Sir: You forgot Nicolas Chauvin, an ultra-loyalist soldier for whom Napoleon I could do no wrong. In recent years his name has combined to express the ultra-macho, i.e., male chauvinist pig!
Huguette Studey
Phoenix

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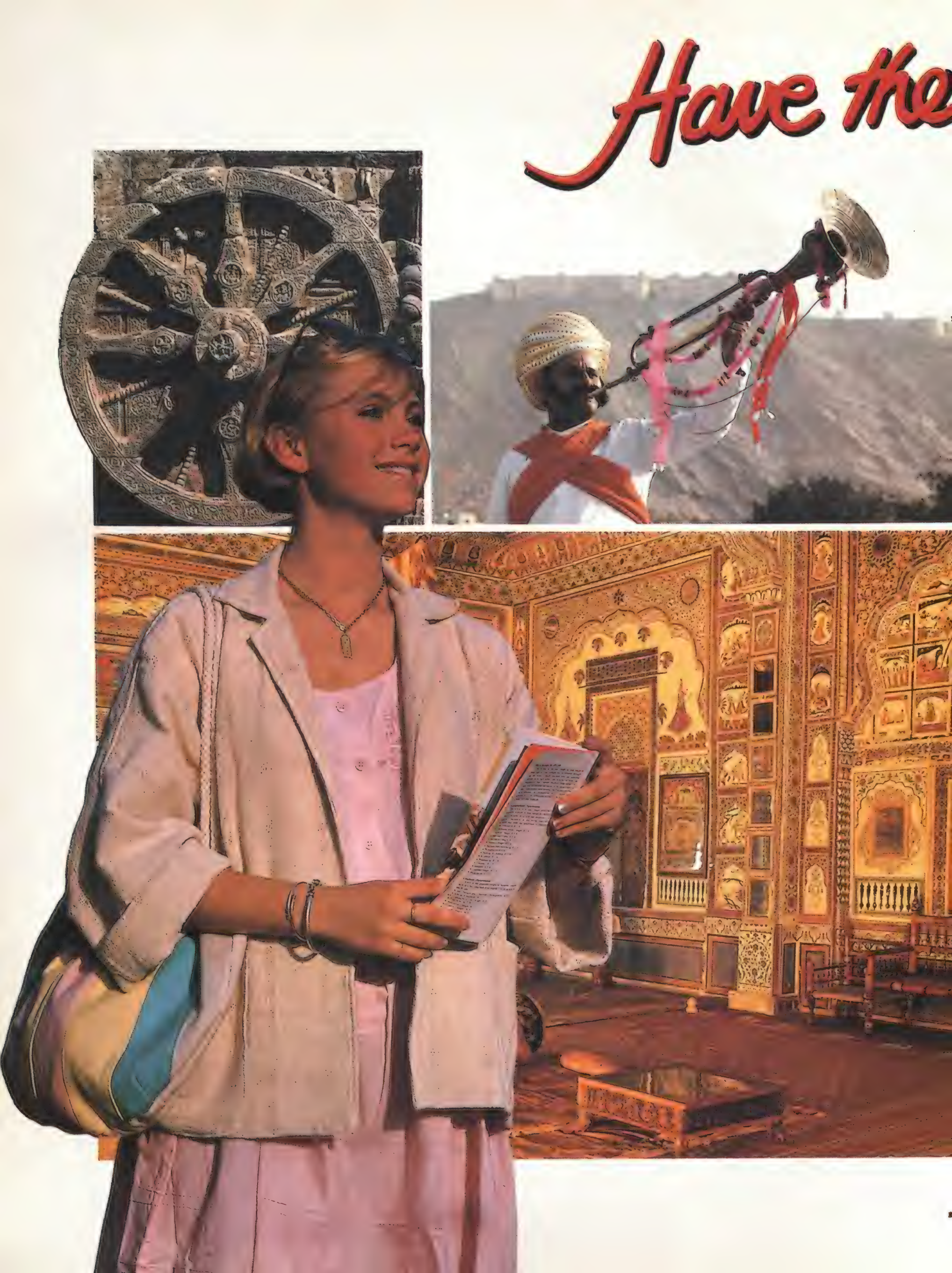
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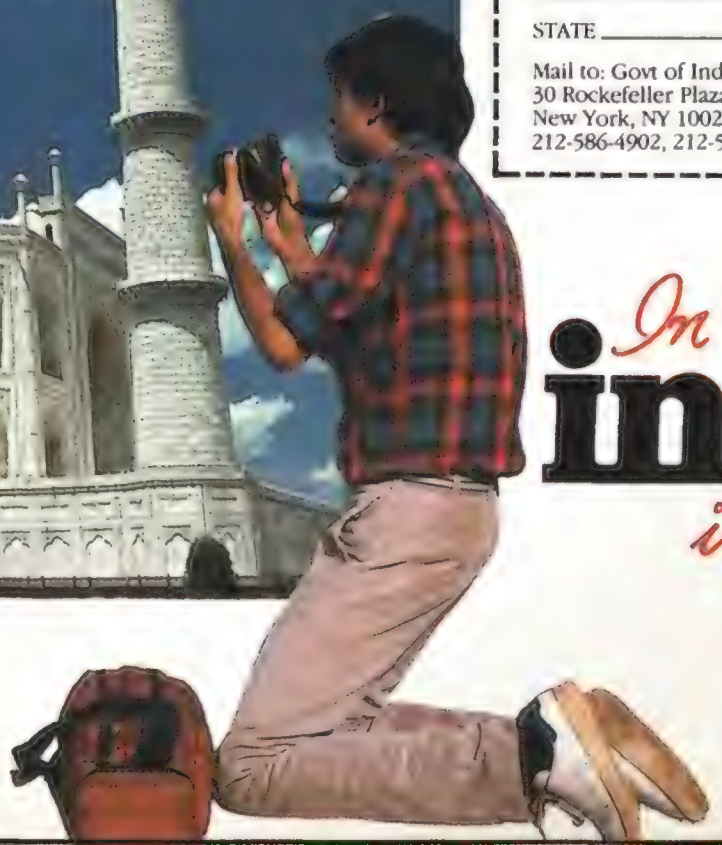

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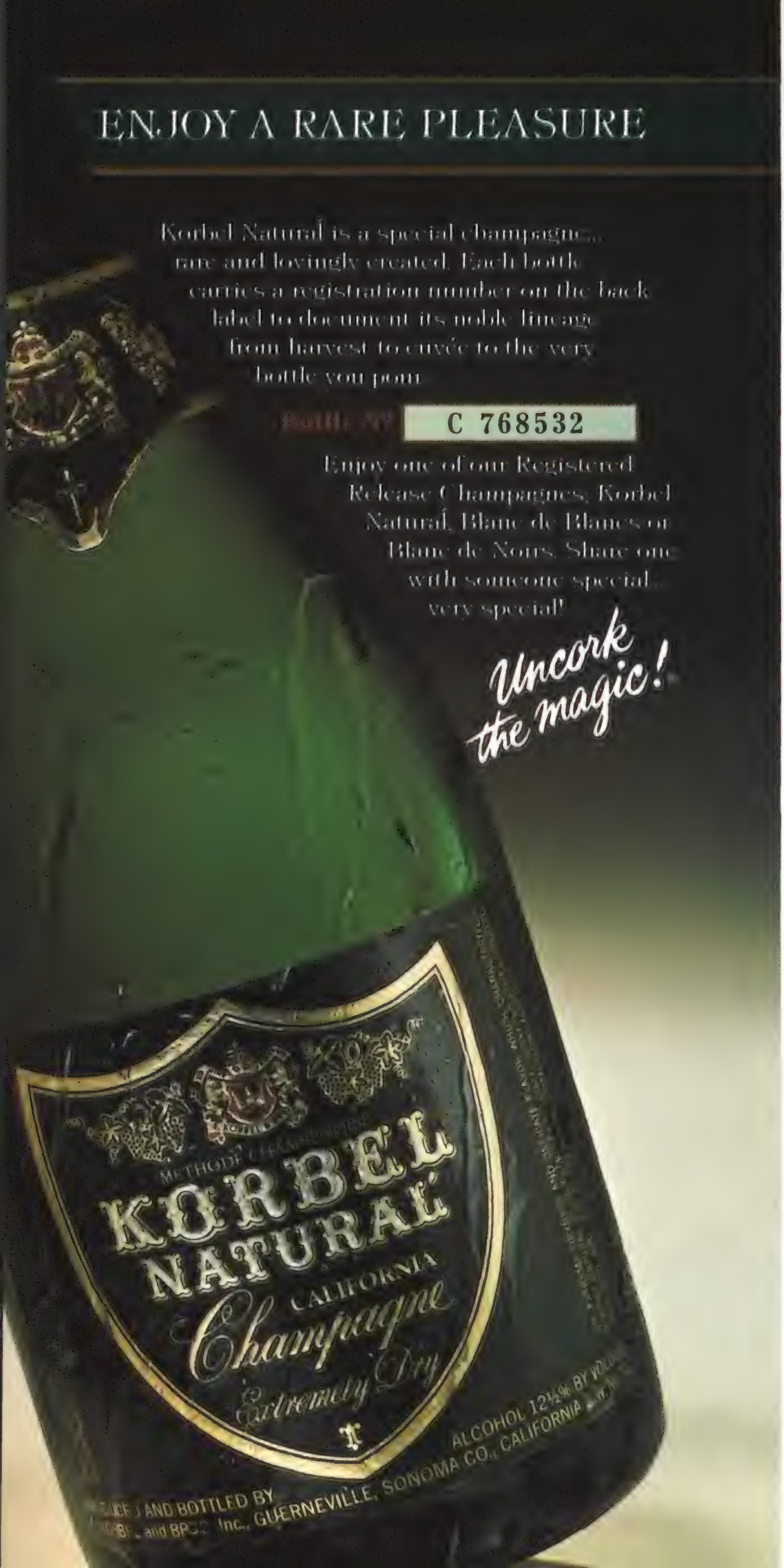

Around the Mall and beyond

Just a year ago, the Smithsonian pulled out all the stops for a huge news conference over at the Museum of American History. A lot of the biggies in Washington journalism—the ones who wear ties—showed up, and through an administrative slip, I was invited, too. The reason was the announcement of plans for a giant new exhibit, "The Information Revolution," to be put together and to go on stage, replacing the present computer display down on the first floor.

Secretary Adams kicked off the session by reminding us that though we are all in the midst of "an information explosion," a lot of us are "wholly unfamiliar . . . even fearful" of the computers which have brought it about. Right on! As one who owns and depends on a personal computer—a word processor—I must admit that it sits in my workroom with the bland self-assurance of an enshrined household deity. I don't begin to understand it. I just worship it quietly, bring it little gifts—fresh morning coffee and expensive floppy disks—and do exactly what it tells me.

The other day I offended it somehow, and it erased a complete article I had just finished. I went off in a corner and moaned a little, and then I brought it a fresh croissant with butter, not margarine, and I simply rewrote the whole piece, using the other, more primitive computer I keep between my ears.

Another time it demanded a thing called a modem. Obediently, I went out and got one. The teenager who sold it to me tried to explain it to me, and I found myself looking at him through a sort of glaze, and nodding agreement with everything he said. He told me I should buy the most expensive modem because it was the best, and so of course

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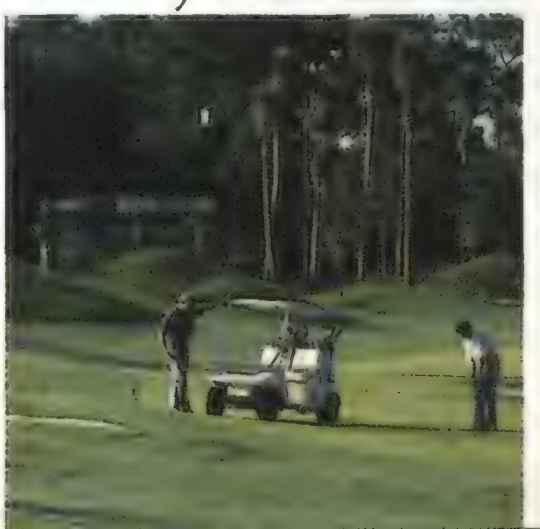

Their paths led, as if by destiny, to the slopes of the Little Big Horn.

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I did. Then for a long time he spoke to me about it in Urdu. Finally he said, "Now that you know how it works and how to plug it in, you'll be just fine."

Again, I nodded in complete agreement. He may have been a mere high school junior, but he was the high priest of my household god. I would have agreed to anything he said: selling my family as chattels; even giving my deck shoes to charity.

I know that his Baal enslaves me because of my wretched ignorance. I still believe in things like vacuum tubes and molecules, and that it's dangerous to smash an atom. So I need to know whatever the Information Revolution will tell me, and quick.

Eagerly waiting for it, I've developed a new sensitivity toward science. So I prickled with interest in a conference last summer held by the National Science Resources Center, a new organization established last year by the Smithsonian and the National Academy of Sciences. The conference dealt with the teaching of science right back where it counts most—in elementary school.

After a few sessions, I realized that science teachers often feel as intimidated by their job as I do by the whiz kids who occasionally emerge from their classrooms and become the pundits of my word processor. Not all youngsters are eager to learn science and get rich in the computer business. They'd rather learn boys, or girls, or skateboarding. So teachers have to lure them toward the gates of success, and do it on a tight budget, too. And that can be a most daunting prospect.

The big group (I counted close to 100 participants—scientists, teachers, science supervisors, museum educators and representatives from scientific and professional organizations) met sometimes at the Smithsonian, sometimes at the Academy, and got right down to cases, with little time for ceremony and small talk. They discussed curricular materials, teaching aids, including what various museums offer, and testing. And they had a look at "exemplary science programs," represented by 14 school systems and science museums ranging from Philadelphia to Anchorage.

Much of the purpose of the meeting was to impress upon school systems the need to wrench students away from textbooks and make them *think*—not just parrot printed phrases. "Hands-on" teaching that involves the kids in exper-

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To today's kids, computers are almost as familiar as peanut butter and jelly.

iments is certainly a lot more fun, and it inspires them to puzzle out the meanings of their results.

Cleverly, I managed to concentrate most of my coverage around a reception which the National Science Resources Center put on in the Academy's Great Hall. Here were displayed some ingenious teaching tools, and I inspected them, trying not to drop hors d'oeuvres on them. They ranged from simple, inexpensive teacher inventions to computer programs.

There was a cardboard maze, for example, about two feet on a side, with a bewildering series of corridors running at right angles to each other. At every corner a mirror stood at exactly 45 degrees. So a flashlight, firmly strapped in place at the maze entrance, sent its beam right through the maze, bouncing from mirror to mirror, to emerge at the exit.

At the other end of the spectrum, a computer magically clarified problems by allowing students to move figures about on the screen. The Screen. I must give it a capital, for It's the baleful Eye of my personal Omniscience. To today's youth, however, it's the most comfortably familiar object in the home. They learn from it readily.

I'm sure I could too, if I were in school again. But I'm not sure that I could invent something at the drop of a hat, which is what some of our young students will soon be asked to do. This

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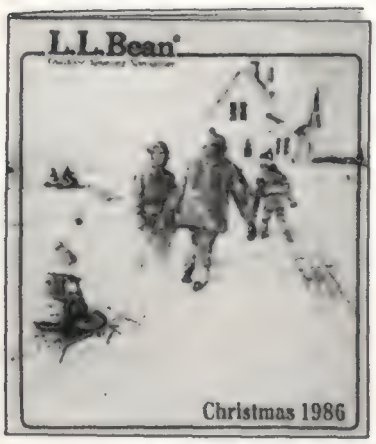

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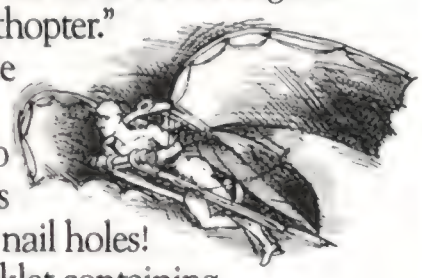

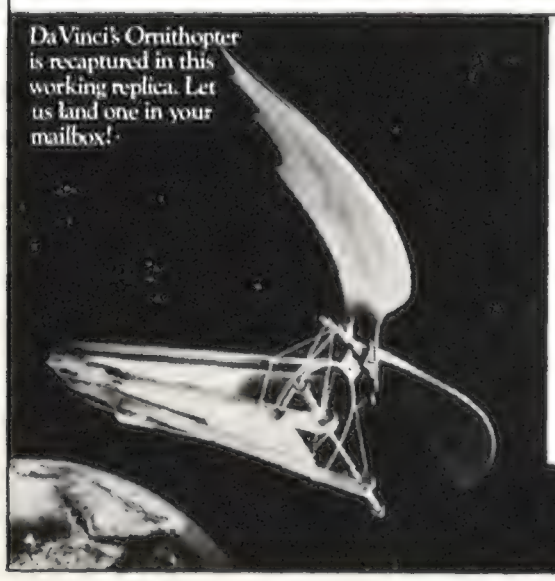

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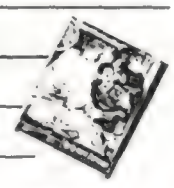

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is part of the current effort to gather up thousands of fascinating original patent models (required by the Patent Act of 1836 to be submitted along with every application for a patent) scattered across the country, and get them into the Smithsonian's permanent collection for future care and exhibition. A special patent-model showcase restoration center is planned for the Museum of American History. The United States Patent Model Foundation is raising money and enthusiasm for this project, and one of its plans is to hold invention contests in American schools.

We Americans used to be the world's most inventive people, so why is it that the prospect of inventing something in 1986 somehow seems impossible? Are we still as blind as the patent authorities whose extraordinary view that everything of importance had already been invented led to a 1907 Congressional order calling for the disposal of most of the models? Or are we jaded with the endless complications of the Computer Age? Last year, only 56 percent of U.S. patents went to Americans. Compare that to almost 90 percent in 1961.

The Smithsonian has, however, produced one important invention lately. Over at the Air and Space Museum, computer experts were inspired by former director Walter Boyne to come up with a new way to store information: the System for Digital Display (*Smithsonian horizons*, September 1985). Instead of keeping research information—text and pictures—on microfilm, the museum's Advanced Projects Division, under Hernan Otano and his assistant, Robert Martella, found a method to "translate" printed text and photographs into a signal that can be stored on a videodisk. A single disk can hold thousands and thousands of pages—whole file cabinets crammed onto a silvery platter.

It all sounds very wonderful, and the news of it, when first announced, made my eyes glaze once more. But last summer I watched an earlier NASM archiving system being used, not as a demonstration, but to help me with something I needed to know.

I had gone to Maine to visit the marvelous little Owl's Head Transportation Museum near Rockland, where ancient planes and grand old cars are collected and kept in perfect working order. I had a question about a plane not in their collection—an old twin-engine bomber of the late 1920s, the Curtiss Condor, and

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I asked the museum's director, Charles Chiarchiaro, what he knew of it.

"Not much," said Charlie. "But we can find out easily enough."

Fearing a long session in musty files, I demurred. But Charlie waved my objections aside, switched on a videodisk player and monitor and produced a shiny silver disk from a drawer. Scanning an index, he found "Curtiss," set the disk in the machine, turned it on and hit a key in a remote control. There was a flutter on the screen as hundreds of pages of photographs flipped by at lightning speed. Then Curtiss planes appeared, and Charles riffled through them until he reached "Condor." And there, within 35 seconds, was the answer to my question. I was finished with my task in record time and I pondered the magic of what the new digital-display system will produce for bits of research such as mine.

The System for Digital Display has a resolution three to four times that of conventional television, the system used for the NASM videodisks of photographs I saw up in Maine. This higher resolution is what allows the scanning, storage and viewing of documents and drawings as opposed to just photographs. So far NASM has archived two projects using the digital system and another is under way. It is also marketing the system itself, so it won't be too long before you and I will be able to use it. In fact, Robert Martella tells me that NASM is planning to have distribution disks and a low-cost, high-resolution digital-display system available for libraries, universities, museums, schools and so on within a year. How about them apples! (A frequent contributor to these pages who lives in Scotland tells me that *he* uses an Apricot! No kidding!)

This is the Information Revolution at work. I'll never understand it. But I learned that day at Owl's Head that I can love it, nonetheless. That particular glass screen served me so well that I lost my fear of it. I felt surprisingly relaxed in its awesome presence. I even had the temerity to ask it to look up something else. And it did.

Thanks to it, I faced the sudden glory of a free afternoon on the Maine coast. I rose and started to leave. Then, remembering my manners, I walked over to the mighty god of Owl's Head, offered it half a Hershey bar with almonds and gave it a little pat.

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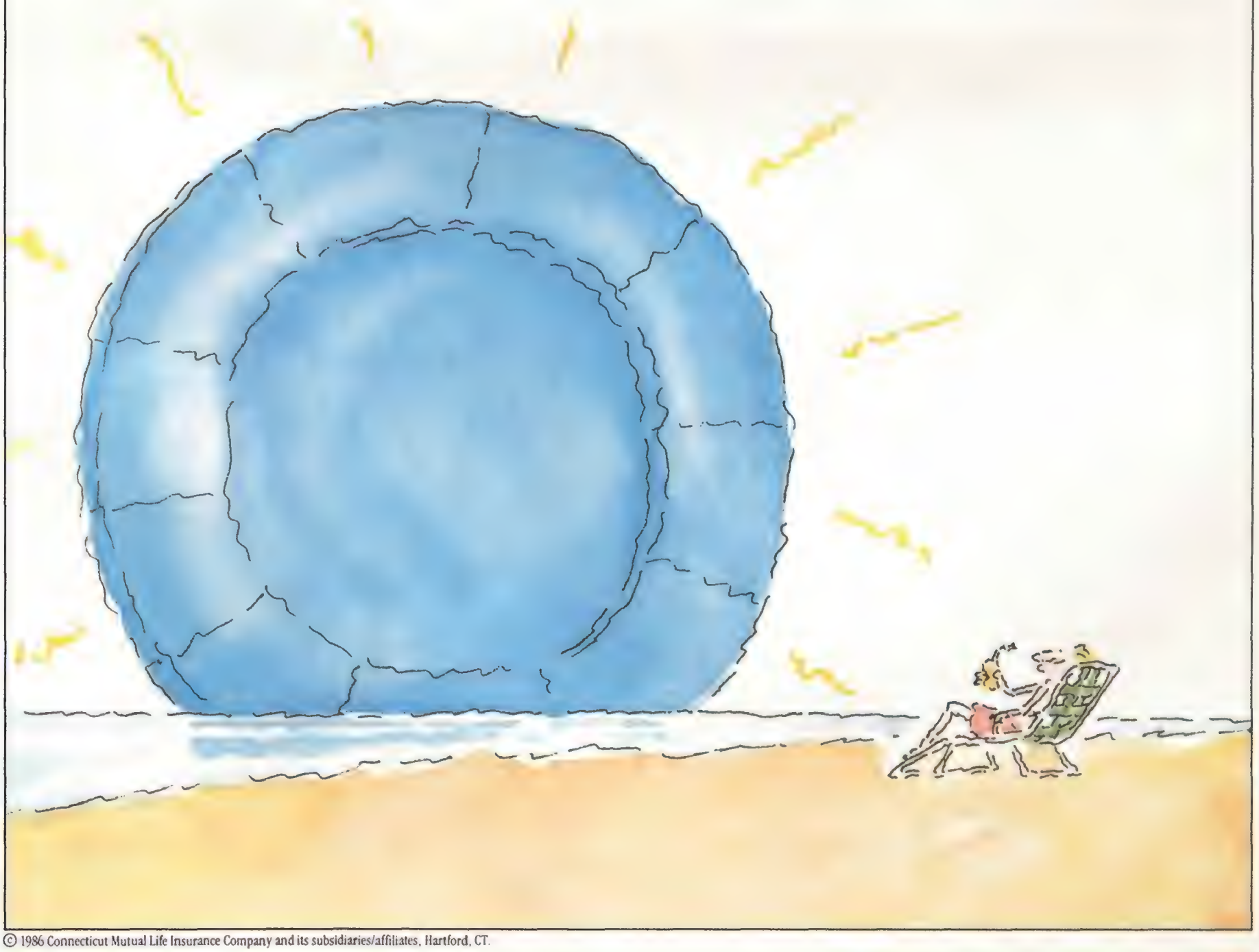

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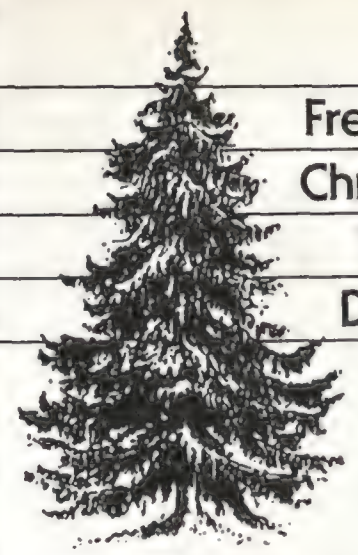
Phenomena, comment and notes

Our age shapes up as the worst mass extinction since the dinosaurs', but there is still time for turning it around

Conservation biologists got together in Washington in late September to worry about a subject that would have been taken for granted at the turn of the century: the value of biological diversity. Human beings are clearing forests and draining wetlands at an ever-increasing pace, and the entire natural world is retreating before them. Jointly sponsored by the Smithsonian Institution and the National Academy of Sciences, the five-day forum was aimed at determining what is happening and why, what it will mean to us and what we can do.

The problem is well known (SMITHSONIAN, September 1986). Species are disappearing at a rate 1,000 to 10,000 times the normal rate. We stand to lose as many species as went during the great extinctions of the geological past, such as the one 65 million years ago when most of the dinosaurs disappeared. This time around, however, we are losing plants as well. Much, but by no means all, of the damage is occurring in the tropics, where most species live.

In temperate zones, the biologists argue, we have to go beyond trying to preserve what few pristine ecosystems are left and restore some biological diversity to areas that have already lost it. We are learning how to do that. John Cairns of Virginia Polytechnic Institute has been surveying the biological field stations of U.S. universities. The 40 he has information on so far were located, without exception, on damaged or destroyed ecosystems. Some have been managed by "benign neglect," some more actively.



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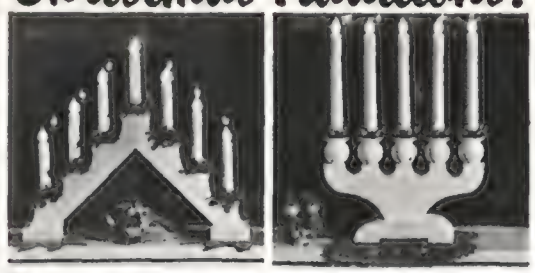

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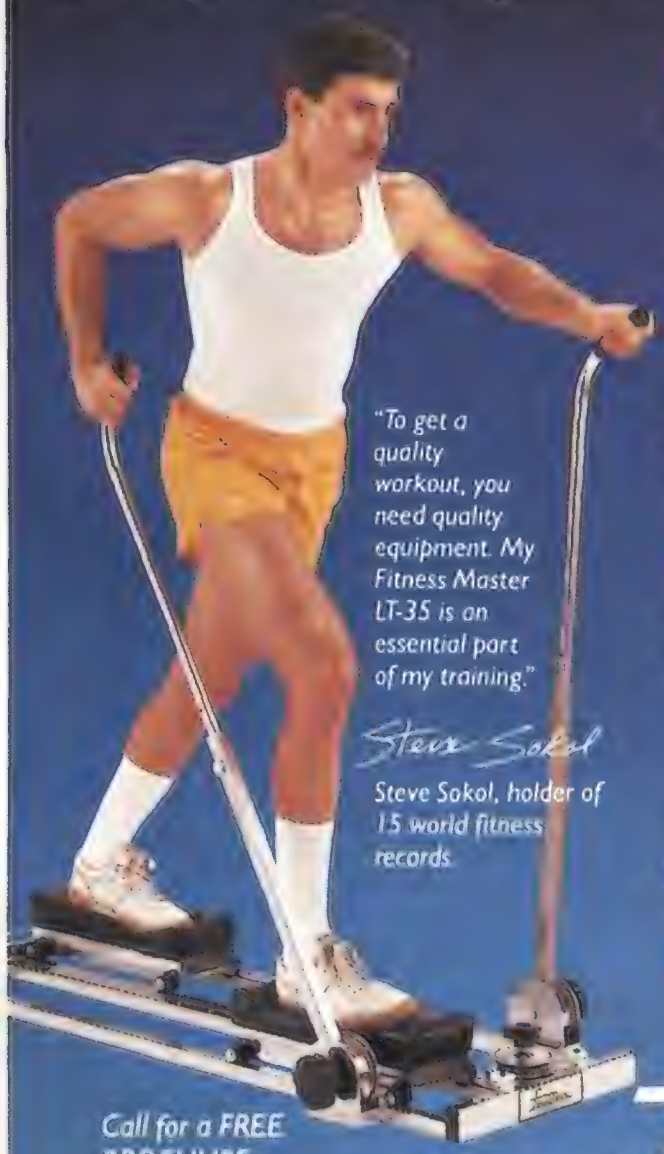

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Nearly all now serve as nature preserves. William Jordan recounted the success of the University of Wisconsin Arboretum, begun in the 1930s under the direction of Aldo Leopold to re-create a tall-grass prairie on an abandoned farm. Now the Arboretum boasts a collection of 35 restored ecological communities, a biodiversity "hot spot" on the edge of Madison.

Jerry F. Franklin of the Forestry Sciences Laboratory in Oregon argued that most land in temperate zones is going to be used for commodity production, habitation and so on. The question is not to preserve it but to manage it for maximal diversity. (Some foresters, he said, think diversity is having 100 age classes of Douglas fir.) Dennis Murphy of Stanford said cities need diversity, too. Original species cannot live there, so the answer is to move in the species that can, providing understory as well as trees.

The biologists argued conservation philosophy. People respond to endangered species that are spectacular or cuddly. They want to save pandas, tigers, whales. Such creatures are indeed, as Michael Robinson, director of the National Zoo, pointed out, the jewels of the natural world. Yet we could probably live without them pretty well. As Paul Ehrlich of Stanford said, "Having condors in the skies of California is esthetic, but they really do not do much for decomposition in that ecosystem." Their greatest value, outside of their own uniqueness, is as umbrella species. What we will lose with the condors is protection for large areas and for lots of less spectacular organisms in those areas. It is the unheralded creatures that provide our life-support systems. They are the ones that recycle nutrients, generate soils, maintain the quality of air and water, attenuate floods, and keep in check the carriers of disease and the destroyers of crops. They are the ones we cannot live without.

First we need to know what is there. Edward O. Wilson of Harvard estimated that in all the world there are no more than 1,500 tropical biologists and the number is going down rather than up. The number of scientific papers published on tropical ecology dropped by more than half from 1979 to 1983. The decline stems partly from money problems, he said, and partly from higher priority given to other disciplines. (In a teleconference the last night, he spoke of "molecular triumphalism.") He thinks

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STEGOSAURUS (*Greek, Roof Lizard*) No detail has been overlooked in this superb simulation of the famous "three-brained" dinosaur. From the rows of alternating saw-edged plates that cover its neck, back and tail to the bony spikes on the tail's tip that could smash even the most imposing foe with fatal force, the brilliantly faithful and life-like reproduction you see here captures every startling detail of this unusual looking monster, right down to its tiny, hooked beak.

TYRANNOSAURUS (*Greek, Tyrant Lizard*) Feeble, two-fingered forelimbs and an awkward pose belie the tremendous power of Tyrannosaurus—the largest and most highly evolved of the flesh eaters. Here are all its ferocious features in frightening detail: the enormous head; its dagger-like teeth (saw-edged, to rip through carrion with ease); huge, sharply clawed feet at the base of two alarmingly powerful legs; and a massive, sinuous tail. Based on a specimen from the Museum's holdings, this ingeniously conceived model is a hands-on learning tool the whole family can enjoy.

DIPLODOCUS (*Greek, Double Beam*) Nothing captures the lumbering ferocity of the longest land animal of all time better than this exquisite model imagined by the experts at the British Museum. From its tiny head and snaky neck to its frightening whip-like tail, fascinating details abound. Like its nostrils, located above the eyes so that most if its head could be underwater as it raked up swamp plants with its tiny pegged teeth. An incredible 20" long, this handsome miniature is the hallmark of the Museum's collection.

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it would take 25,000 professional lifetimes to inventory the planet.

More difficult is the problem of convincing the powers that be that biological diversity is worth saving. Speakers talked of a leukemia cure derived from a primrose and another for Hodgkin's disease from a periwinkle. An economist estimated that perennial corn, bred from the teosinte discovered in Mexico (SMITHSONIAN, December 1979), could be worth $6.8 billion a year.

Basing all the arguments on self-interest could be a mistake, however. David Ehrenfeld of Rutgers, editor of *Conservation Biology,* warned that by assigning value to diversity, we may legitimize wiping it out. He cited a paper in the *Journal of Political Economics* by Colin W. Clark of the University of British Columbia. Clark showed that the most profitable thing to do with blue whales would be to kill them all immediately and invest the proceeds in another enterprise.

The problem for conservationists, Ehrenfeld said, is that many species seem to have no conventional value at all, even in terms of ecosystems as life-support systems for us humans. The rarest species with the narrowest ranges are least likely to be missed by the biosphere. "When the last California condor dies," he said, "don't expect the redwoods to wither or the San Andreas Fault to open."

If conservation is to succeed, he said, people must understand the wrongness of destroying biological diversity. Ehrenfeld was not alone in that conclusion. Ehrlich ended his carefully reasoned argument by saying, "A quasireligious transformation leading to the appreciation of diversity for its own sake, apart from the obvious direct benefits to humanity, may be required to save other organisms and ourselves." Wilson ended his opening address by reading from his recent book, *Biophilia*, a section on Suriname, a country he clearly loves: "But I suggest that as biological knowledge grows [today's] ethic will shift fundamentally so that everywhere, for reasons that have to do with the very fiber of the brain, the fauna and flora of a country will be thought part of the national heritage as important as its art, its language, and that astonishing blend of achievement and farce that has always defined our species."

The final session transcended conventional science. James Lovelock, the Brit-

A portion of the poster commissioned for the National Forum on BioDiversity celebrates the variety of life on the planet.

ish atmospheric scientist who has revived the concept of the planet as a living organism he names for Gaia, the Greek deity personifying Earth, defended his view. Most scientists laugh off the idea because the Earth is mostly rock, and molten at that. But a redwood, Lovelock points out, is more than 90 percent dead wood. Only the skin is alive, just like the Earth. John B. Cobb of the Claremont School of Theology said theists believe that our supreme calling is to contribute to the richness of the cosmic experience. Hence, to diminish diversity and thereby richness is a crime against the Creator. Michael McClure declaimed his poems, cries to the natural world not to leave us. And Larry Littlebird of the Institute of American Indian Arts in Santa Fe had an auditorium full of scientists, conservationists and educators rhythmically jingling their car keys as he sang of nature's beauties, first in his native tongue and then in English.

Michael Soulé of the University of Michigan noted with disappointment that the only time during the conference he felt tears in his eyes was during a performance of Vivaldi at the opening

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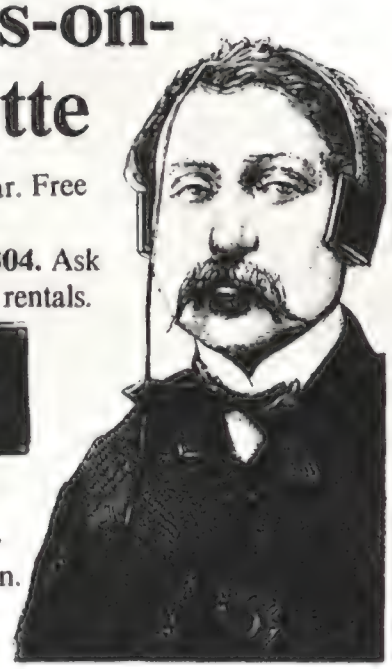

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concert. We need to emote as well as inform, he said. He quoted Arne Naess, the Norwegian philospher who originated deep ecology, as saying we need leaders "who can express their spontaneous experience of nature."

While they were in Washington, these field-biologists-turned-missionaries stood up to be counted. They were aghast at U.S. Forest Service plans to allow commercial timbering in the Caribbean National Forest on Puerto Rico. It is the only tropical rain forest of any size in the U.S. forest system, they said, and cutting even part of it sends a confusing signal to developing countries. They visited Congressmen, fired off a joint letter to Chief Forester Max Peterson and called an impromptu news conference outside the Smithsonian's Museum of Natural History. Wilson pointed out that not only are tropical rain forests almost gone throughout the Caribbean, but that each one is different, host to endemic species found on no other island or anywhere else in the world. Daniel Janzen of the University of Pennsylvania noted that the Forest Service plan comes at a time when Congress is writing protection for tropical forests into foreign-aid bills. Ehrlich was more succinct: "What the Forest Service is planning is equivalent to pulping the Library of Congress."

The forum was serious, but the very opposite of gloom and doom. These are people who love life, both beetles and people. They understand the problem better than anyone, and yet each is an optimist. They think we can turn it around before we lose much more than we already have. They are people who can, indeed, express their "spontaneous experience of nature," partly in what they tell us of ants and butterflies and whole tropical forests, and partly in taking the trouble to come tell the rest of us what we are losing.

So. What is the value of biodiversity? Bryan Norton of the University of South Florida has struggled with the economics. He has even introduced new units. An "oops" is the smallest measure of regret for the loss of a species. A "boggle" is a measure of uncertainty about an ecosystem. But even with advanced methods, the best he could do was to set the value of biodiversity equal to the Gross National Product of every nation in the world until the end of time. Ehrenfeld was pithier: "The value of diversity *is*."

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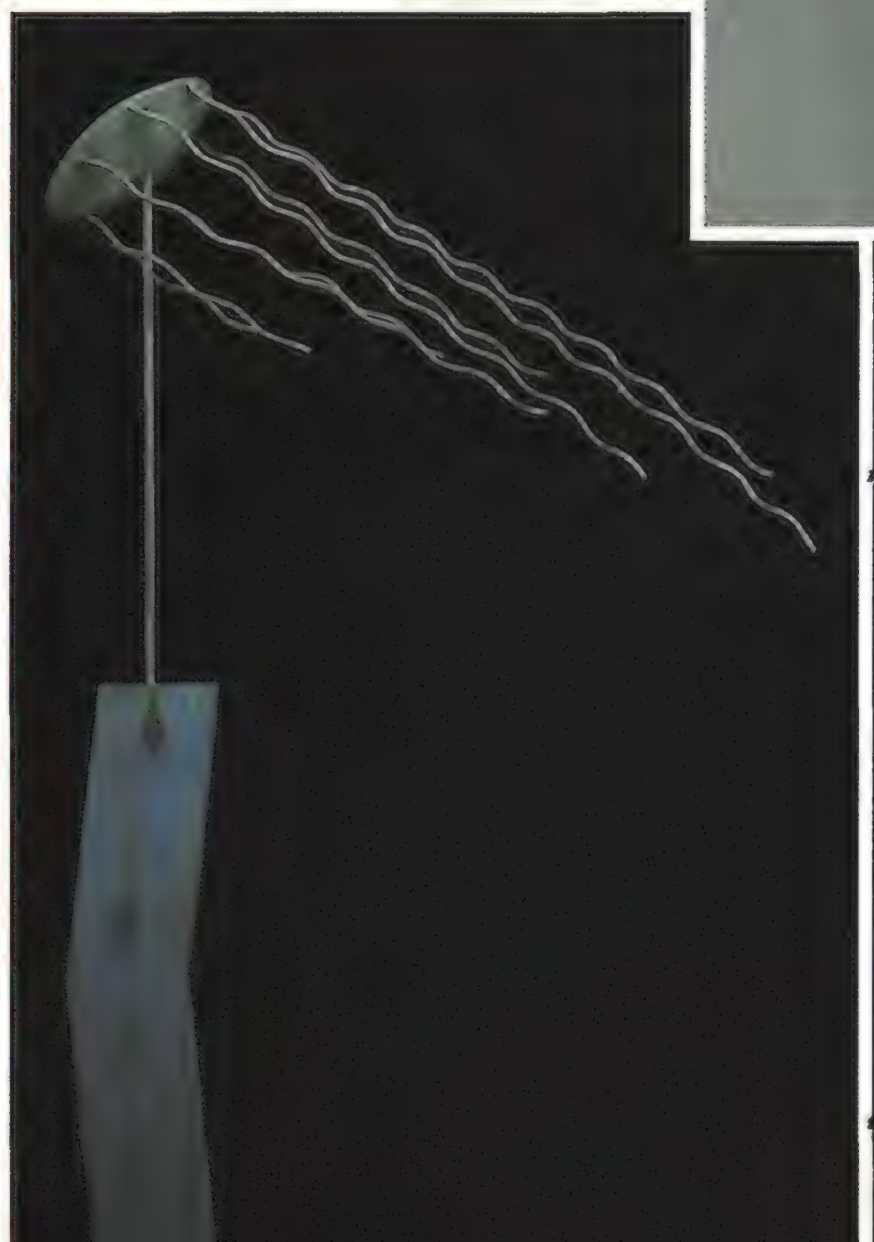

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Recent works appearing in the exhibition and tour: (top left) DESK, bubinga and ash, 59″ long, by Jere Osgood. (top center) RITUAL VESSEL, glass, 18″ high, by Mark Abildgaard. (top right) BASKET, birch bark, 19½″ long, by Dona Look. (center right) HOPI KACHINA, gold, lapis, coral, turquoise bracelet by Charles Loloma. (bottom right) SHARD ROCKETS, glass sculpture, 55″ high, by Richard Marquis. (bottom center) WEATHERVANE, copper with wood base by Jonathan Bonner. (bottom left) RHYTHM/COLOR: THE CONCORD COTILLION, cotton and silk quilt by Michael James. Photographs: DESK by Andrew Dean Powell, others by George Erml.

By Timothy Foote

'But if enough of us get killed something may happen . . .'

In Budapest an anti-Soviet revolution triumphed in 1956, and was savagely crushed, yet it made its mark on Hungary's history

From the top of Gellert Hill, where once again the bronze figure of a Soviet soldier stands guard before the female statue of Freedom, the city of Budapest is breathtaking. The Danube, so far as I know, is never blue. But from here, on hazy summer mornings, it shades to a blue-gray as it flows under its six handsome bridges, past a new zigguratlike hotel and the delicate spires and filigree of Hungary's Parliament building. If Paris was worth a Mass to France's Henry IV in 1593, it is easy to imagine, even putting Soviet oppression aside, why Budapest was worth a mass uprising to patriotic workers and students 30 years ago, and a massacre to the Russians who crushed the revolt.

As a journalist I saw some of that fighting. Now, looking at Budapest for the first time in 20 years, like so many recent visitors from the West I am astonished. Today Budapest is a city transformed. The shattering damage that certain quarters took during the struggle between Hungarian freedom fighters and Russian tanks in 1956 has been richly repaired. With buildings going up and fancy shops along Vaci Utca practically spilling merchandise onto the sidewalks, the place has the look of a rich, carefree, crowd-filled Western city.

Much has been made of these changes, and so it should be, and of Janos Kadar, Hungary's aging Communist leader. A worker turned politician, in 1956 Kadar was judged a traitor, a liar and a betrayer of friends. Now he stands forth as a man of wisdom and political genius. With the 80,000 Red Army troops still stationed in Hungary acting as a permanent damper on any lingering Hungarian hopes of real independence, Kadar has tried to make the country forget 1956 while applying a certain amount of common sense, fair dealing and free enterprise. Over the past two decades he has kept the country peaceful and Communist, while turning it into the easiest-going, freest and fiscally fanciest member of the Soviet Union's still grim East European bloc.

In America, for those who remember Hungary at all, there has been a tendency, of late, to view the 1956 uprising as premature and a bit feckless, above all as an impediment to good international relations and trade. Before the trip to Budapest, a State Department man told me, "Now we have the best relations with Hungary ever. But for 20 years things were absolutely poisoned by the Hungarian Revolution. It has absolutely nothing to do with Hungary today."

Maybe so. At the moment, though, while Hungarian citizens are fairly free to make fun of their government, it is still virtually taboo to write or speak in public about the revolution of 1956. School history books still dismiss the subject in a paragraph as a "fascist counter-revolution." About 40 percent of the population is 30 or under, with no memories of the event. "They're just vaguely aware of it," a student told me. "Something that happened with the Russians a long time ago."

Budapest is filled with statues and monuments, including several to Louis Kossuth, Hungary's combined Lafayette and George Washington, who led a successful revolt against the Habsburg emperors in 1848, only to have Hungary crushed again by a Russian army sent by Czar Nicholas I. Yet today Budapest has nothing to commemorate those Hungarians who fought for freedom in 1956. The only public monuments linked to workers and students who fought and died then are those erected to their enemies, the handful of secret police killed in the struggle (think of Bunker Hill marked only with tributes to George III's Redcoats).

Street fighters like these took over the city, changed the government and briefly held the Red Army at bay.

Photographs by Erich Lessing/Magnum

Keystone Press Agency

Requested by Hungarian Communists, Russian tanks rumbled in to protect Parliament, and Party centers.

Michael Rougier, *Life* Magazine © 1956 Time Inc.

On a street cluttered with the debris of battle, rebels fire futilely at a Soviet observation plane.

Attempts to brush the 1956 revolution under the rug of history will probably fail. For it was arguably the bloodiest, most decisive and above all most revealing explosion of the Cold War thus far. Everyone has now more or less grown used to the Cold War. But revisionist historians notwithstanding, it was a Soviet creation that came as a dreadful surprise to the Western democracies. In the early days the whole thing seemed so outrageous and so unnecessary that logic could hardly be brought to bear on it. Nobody could make a sensible guess about the range of Soviet fear and suspicion, or about whether the Soviet Union was capable of change.

After Budapest the picture came starkly clear. Oppressed satellite nations had some bargaining power with Moscow, but permitting a multiparty system appeared as deadly to Communism as water to the Wicked Witch of the West. And if accommodation failed, the Soviet Union would risk almost anything to hold its East European empire, while the United States could do nothing about it.

The 13 days that shook the Communist world began rather like an uplifting scene from a Cecil B. DeMille extravaganza. Streams of students, and some workers, swelling into a crowd of thousands marching ten abreast, poured across the city's great bridges and through Budapest's wide streets toward the Parliament building.

They carried posters and waved Hungarian flags from which the Communist star had been snipped out with scissors. They sang patriotic songs and shouted slogans: "Russki go home!" "Disband the AVO!" (the old acronym for the security police whose initials had already become AVH). "We want Nagy!", a reference to Imre Nagy, a studious man with a walrus mustache who, though he had lived for 15 years in Moscow as a Russian citizen, was known as the most liberal of Hungary's notably savage Communist Party leaders. More than 10,000 crowded into Kossuth Square beside the Parliament building. They were genial. They simply had a petition, with a list of demands they wanted the government to listen to. These included the return of Nagy to power; the eventual withdrawal of the Red Army, which at the time had two divisions outside Budapest; an end to the power of some 35,000 security police whose use of kidnapping, torture and terrorism had turned the lives of thousands of Hungarians into a nightmare. (Hungary's population was, and is, 11 million. On an American scale an equivalent secret-police force would be more than 750,000 men.)

Such demands were not extreme. The demonstrators were not exactly asking for Eisenhower Republican-

During fight they picked up weapons wherever they could – some acquired from the Hungarian Army.

Hannes Betzler

Waiting for second Russian invasion, a wounded rebel limps toward crossroads guarded by Hungarian tank.

ism.They just hoped to ease the worst of the Stalinist abuses. The tide seemed to be shifting in Eastern Europe. The American Secretary of State, John Foster Dulles, had grandly talked about "rolling back the Iron Curtain." Most important, the new Soviet Party Secretary, Nikita Khrushchev, had been struggling to get his country to give up many of Stalin's policies.

Stalin had thrown Marshal Tito of Yugoslavia out of the Comintern and tried to have him murdered because Tito said he wanted to run his own Yugoslav Communist Party in his own Yugoslav way. But in May of 1955, Khrushchev journeyed to Belgrade and reinstated Tito. "My father's socialist house," he declared, "has many mansions." Khrushchev began letting people out of the gulags to which Stalin had permanently consigned millions of Russians. He had quickly moved to spring Hungary's neighbor Austria from the limbo of four-power occupation, making her a free but essentially neutral state.

Yet on October 23, the day the crowd massed in front of Hungary's Parliament, Party Secretary Erno Gero, a hard-lining Stalinist, refused to treat the list of demands seriously. Instead, Gero threatened the petitioners and called them "enemies of the people." When they left Kossuth Square it was late in the day. They were angry now and full of energy.

Thousands headed for the Budapest radio station to demand that a petition be read over the air. The frightened station director at first agreed, then trickily had the reading put on a loudspeaker so the crowd could hear, but without actually broadcasting it. Someone in the crowd had a radio and discovered the ruse. Bricks began to fly. In the building the beleaguered AVH initially used blanks and tear gas, but finally fired bursts of gunfire into the crowd. Now a few Hungarian soldiers joined the rebels. Others handed their weapons over to the crowd, which eventually blasted the AVH from the radio building.

Enraged groups dashed to Stalin Square and began fruitlessly smashing at a 24-foot bronze statue of the Soviet dictator with bricks and sledgehammers. A worker with an acetylene torch, slicing the statue off at the ankles, finally brought it crashing down to be spat upon, dismembered, the parts paraded through the streets.

Raids on state arsenals began; weapons were handed out to anyone who wanted them, and the rebellion started in bitter earnest. By the next day two mechanized Russian divisions stationed nearby had been called into Budapest by the Hungarian Communist government. Fifty of the arriving Russian tanks rolled into Kossuth Square to encircle Parliament. Harassed by snipers, others took positions at crossroads or

John Sadovy/*Life* Magazine © 1956 Time Inc.

High on Gellert Hill in 1956 (left) a Hungarian crowd, hauling with ropes, pulls down the figure of a Soviet soldier standing guard at the base of the huge statue of Freedom. Today (above) the offending Soviet soldier is back in place.

roamed the city trying to drive freedom fighters from the streets and impromptu strongholds. The Hungarian rebels, who had seen Soviet films about heroic guerrilla forces, began using homemade Molotov cocktails and now and then a captured antitank gun. Some Hungarian Army tanks joined the rebels too. During the next few days, just in the area around the Kilian Barracks on Ulloi Ut and the Corvin Theater, the streets were strewn with the innards of Russian tanks and armored cars.

On October 24 the Soviet Union agreed to have Nagy put back in power. He declared martial law, but could not make it stick. He offered amnesty to any rebels who swiftly laid down their arms. There were no takers. Now the hope was that by yielding to a certain number of demands and promising to consider others, the Communist government might hang on to power and stabilize the country. On October 25 it was announced that the hated Gero was out as Party Secretary, to be replaced by Janos Kadar who, though he had once served as Interior Minister in charge of the security police, was counted as sympathetic because, in what has been aptly described as the "Shoots and Ladders" of Communist politics, he had also been imprisoned and tortured by the Stalinist wing of his party.

By October 25, too, communications with Western Europe were all but cut off. But the power of the revolution was now clear. Stones had been torn up to make street barricades. Contemptuously tossed on top were portraits of Stalin and Party Secretary Matyas Rakosi, the Hungarian Communist most hated by his countrymen. Thousands of Hungarian workers joined the fight, not only in Budapest but around the country. In Magyarovar in western Hungary, the AVH had used automatic weapons on a crowd that wanted to tear a Soviet star off the front of a local barracks. When the shooting stopped, 85 people, including women and children, were dead. In industrial Gyor and other large regional cities like Miskolc, the leading Communist officials simply went into hiding and citizen committees took control, electing their own leaders. Rebel newspapers, mostly just a few pages long, written and run off at night in temporarily commandeered print shops, began to appear—as did local rebel radio broadcasts—to counteract the official radio which did not tell what was going on.

Nagy was still the rebels' main hope. After the Russian Army was called in, however, their demands included the withdrawal of all Russian soldiers from Hungary, amnesty for everyone who took part in the revolution, the dismissal from the government of all the worst Communist Party leaders, and the creation of a cabinet that included non-Communists. Later, Nagy was able to say he would grant most of these

The writer, a member of SMITHSONIAN*'s Board of Editors, recently wrote about Kipling. In 1956 he was in Hungary as a foreign correspondent.*

things. But he was always a bit too late and there was always doubt that he could deliver on his word. Ill luck seemed to attend his appeals for confidence and order.

On October 25, for instance, a peaceable crowd heading for the Parliament building ran into a Russian tank. The tankers struck up a conversation and after a bit agreed to escort the group to Parliament. On the way they met other tanks. By the time they reached Kossuth Square, Hungarians were riding on the tanks. After they entered the square, gunfire broke out, no one knows exactly why. In a moment Russian tanks were firing away at each other and at nearby buildings. In a few minutes there were more than a hundred dead and dying and badly wounded men, women and children all over the square. The government radio, however, failed to report the event.

The first priority of Marxism-Leninism is that at all costs the Party must stay in power. The second is that the Party is always right. During the revolution, top Russian leaders Mikhail Suslov and Anastas Mikoyan shuttled in and out of Budapest. Once, for safety, they had to be brought from the airport in a Soviet tank. Yuri Andropov, the Russian Ambassador (later head of the KGB and still later General Secretary of the USSR), was always on hand. Before giving in to rebel demands, Nagy, still a good Party man, prudently checked things out with them. They lied to him, and both he and the world were fooled.

Khrushchev said: "either stupid or soft"

The stakes were high. The Russians stood to lose not only their grip on the country, but perhaps much of their restive East European empire as well. Among hard-liners, Nikita Khrushchev's soft reforms were blamed. It was clear that he would now have to be very hard indeed to cover himself. He was also afraid of losing face outside Russia. The capitalists "will say we are either stupid or soft," he confided to Tito.

A Russian plan to clamp the lid down on Hungary by quietly sealing the borders and overrunning the countryside with ten divisions had already been set in motion. But that would take time and at first was only a worst-case scenario. Meanwhile, they could slowly give in to the revolution's demands, playing for time, while the Hungarians and the world outside thought there was hope of accommodation. Nagy might quiet things down with limited concessions. If not, they could be sure he would eventually go too far, giving them an excuse to step in. They had still another problem. "No matter what government they form," the first rebel fighter I met in Hungary told me, "there is no strong leader the people can really trust. Except Kossuth, and he's been dead for 60 years."

Nagy didn't seem tough enough to the Russians.

In rare example of looting, exultant rebels rifle a bookstore, then a "cultural center," to burn Communist propaganda. Same store today (below) carries titles ranging from Karl Marx to Janis Joplin, but not George Orwell's *Animal Farm*.

Crowds stroll streets near fin de siècle building and entrance to Budapest's modern subway.

Local Communists who were tough tended to be hated by the Hungarian people. Besides, who was such a patriot and so selfless or ambitious a Party member that he would now risk responsibility for losing Hungary and possible hanging as a Party scapegoat?

The Kremlin was fearful of Western interference or United Nations inquiry, both of which the freedom fighters, as they lost confidence in Nagy's authority, increasingly hoped for and openly courted. They were desperate. Soon the United States and the United Nations were to be preoccupied with the Suez crisis and a threatened war in the Middle East. But from October 24 on, the Hungarian-language version of Radio Free Europe, paid for by the American CIA, had worked around the clock, relaying news and dispensing encouragement and occasional advice to the rebels. "A political victory must follow an armed victory," one broadcast said, discussing possible plans for a new government. "Don't hang your rifles on the wall."

Day to day, with most communications cut, it was not clear in the West, or even inside Hungary, exactly what was going on. To understand it, as one journalist put it, was like "trying to interpret the groans and thumps of a fight in a locked closet." Officially the border was closed. But medical supplies and food began to come in from neutral Austria, and a trickle of journalists followed. With a friend, photographer John Sadovy, I walked into Hungary near Hegyeshalom at midnight in a late October rain.

"When will you send guns?"

Hungarians tended to greet Western journalists then by asking "When will you send guns?" Like me, however, the bulk of the press did not get in until nearly the moment when it seemed that soon Budapest might not have to face Russian tanks again. An incredible thing had happened: the Russians had previously agreed to the disbanding of the security police and even the possibility of government by more than one party. Now, we learned, they had allowed Nagy to announce the one concession that gave the others meaning: withdrawal of Russian forces from Budapest, their eventual retirement from the whole country.

Late in the night, Soviet forces officially began to leave Budapest. This was the beginning of three intoxicating days when it seemed to the exhausted revolutionaries, and to the astonished world, that they had won. During this period a number of suppressed political parties were heard from for the first time since 1948 and nearly a dozen newspapers sprang up. In all, more than 17,000 political prisoners would be let out of jail.

Certain parts of the city looked as if they had been ravaged by full-scale war. Sidewalks were clogged with

Private booth in overflowing Dimitrov market specializes in a famous Hungarian product, paprika.

"Advertising" tree full of consumer goods covers huge wall near where radio station was besieged in 1956.

rubble. Gaping holes the size of trailer trucks had been punched in apartments by Soviet tank fire. Along Ulloi Ut and Jozsef Boulevard, Russian soldiers and Hungarians lay in broken postures, dead alongside their burned-out tanks, armored cars and self-propelled guns. Rebel work teams and curious citizens poked at the wreckage, inspecting, sometimes repairing and salvaging what they could. Men in white coats sprinkled snowy quicklime on the Hungarian and Russian dead. Small boys collected bullets.

Women in black were sweeping the doorways of blasted shops. An old man, carrying a paint pot, trudged from tank to tank and from gun to gun, methodically decorating each with the shield of Kossuth.

On one side street a woman stood over the body of her husband, weeping. A dead partisan lay in the sun. Someone had found the time to put a wreath of autumn leaves on his chest. At one corner young rebels had placed a captured antitank gun to command the street, and a gunner had hung on its barrel a sign from the Corvin Theater: "Special attraction. Held over three days." Storefronts were smashed, but stores had not been looted. Shopkeepers sometimes found notes explaining that a piece of merchandise had been taken to a neighbor's cellar for safekeeping.

The young street fighters were eager to explain how tanks had been destroyed by drawing their attention toward the upper windows of buildings so that youngsters could dash in at street level close enough to throw Molotov cocktails. When they spoke of Russians their anger was clear and hard, but when they gritted out the word "AVO," fear and rage were almost palpable.

Meanwhile, church bells were ringing in Budapest. High on Gellert Hill, across the river, tiny figures could be seen (p. 56) swarming around the big bronze figure of a Soviet soldier, put up in 1947 at the feet of Budapest's 130-foot-tall female statue of Freedom. Heavy lines, in the distance looking only the thickness of black thread, were tied to it. Hauling like slaves, the Hungarian crowds rocked the figure of the soldier back and forth until it fell.

Next day there were grim rumors, but still no Russian tanks or troops in Budapest. Groups of freedom fighters began to hunt out pockets of security police. Some were taken prisoner but some were killed, especially after a half-day siege of Communist Party headquarters on Republic Square.

For several days, the noise of Russian tanks and troops ranging the countryside was all but drowned out by the noise of public and private Russian assertions that the Red Army would soon be gone for good. Imre Nagy twice questioned Moscow about it and got the same answer. He repeatedly asked Andropov and was told the troops coming in were "just protection" for the troops going out. Uneasy, Nagy nevertheless appealed to the revolutionary groups to lay down their arms, insisting the Russians had acceded to all Hungarian demands. He even sent Gen. Pal Maleter, a hero of the fighting around Kilian Barracks, to a meeting with Russian generals to arrange the final details of

Russian withdrawal from the country. The Red Army brass had been claiming they wanted to delay departure until Communist statues had been set up again. They also wanted to arrange a good-bye military parade in Budapest.

On November 1 in Budapest, during an angry discussion with the Russians, Janos Kadar shook his fist and said, "I am a Hungarian. If you come in I will fight your tanks with my bare hands." Later, Kadar mysteriously disappeared. On the afternoon of November 4, Kadar's voice came over the radio broadcasting from a Russian command post outside the city. Calling for the creation of a new Hungarian communist party, he declared himself Hungary's new Premier. At almost exactly the same time fresh Russian divisions made their move on Budapest.

But by that time Nagy had already faced the fact of Soviet deception and betrayal, and taken the only course left to him. He declared Hungary's neutrality and took the country out of the Warsaw Pact.

This time there was nothing sporadic about the Russian attack. Soviet tanks rolled into town, blazing away at people and buildings as they came. The revolution was virtually crushed after three days. But the November calendar was to be full of last-ditch street fights, fires, imprisonments, mass deportation of students and workers to Russia. Kadar and the Red Army were kept busy, as Kadar put it, saving "the Hungarian proletarian dictatorship." Radio Moscow kept on claiming that the revolt was a counterrevolution, the work of America, West Germany, capitalism, fascism, "bishops, landowners and aristocrats." The free newspapers and political parties disappeared. The first wave of what would eventually be 200,000 refugees slipped into Austria.

General Maleter was seized while he sat negotiating with a Russian general. Imre Nagy took refuge in the Yugoslavian embassy. But on November 22, promised amnesty by Kadar, he emerged and was instantly picked up. Though now deposed in favor of Kadar, he was still popular, still a threat. Like Maleter, Nagy was eventually hanged.

Kadar, who was a metalworker by trade, wooed the armed workers. But all over Hungary they held out against him, defending their plants and going on strike. During the revolution they had for the first time freely elected their own leaders rather than put up with Party puppets. As the Red Army threatened to move against them they seemed entirely abandoned, except for Hungarian humor. At "Red" Csepel, a huge factory complex built as part of Matyas Rakosi's ill-fated instant industrialization of Hungary, the following sign went up: " The 40,000 aristocrats and fascists of Csepel are on strike."

Hungarians, those who fled to the West and those who stayed behind, felt, still feel, a deep bitterness, especially toward America. With some reason they believed that the United States encouraged their sacrifice, then failed to help. Chatter about rolling back the Iron Curtain was political eyewash of the sort understood (and largely forgiven) as campaign rhetoric in America, but taken seriously in beleaguered Hungary.

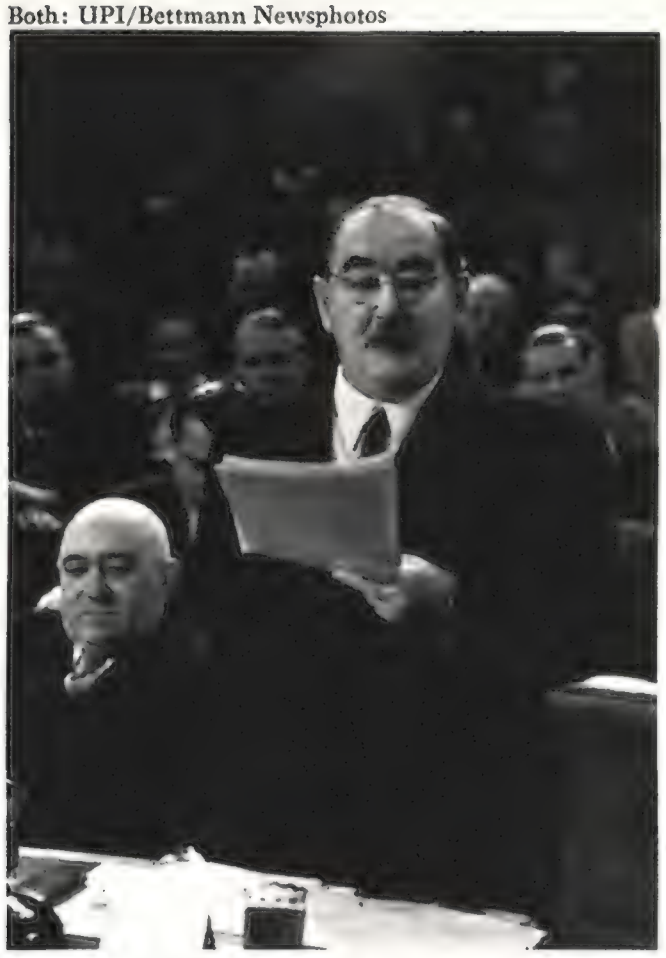
Courage and a sense of humor

When, on October 27, President Eisenhower conveyed to the Russian leaders that the United States was not looking for new allies in Eastern Europe, he mainly intended to make the Russians understand that they had nothing to fear from the West should they somewhat relax their stranglehold on Hungary. What the President's message really did was tell Khrushchev he could do what he had to do anyway—with impunity.

Courage never failed the Hungarians. Nor did a slightly self-deprecating, gallows laughter in adversity. Contemplating their thousands of dead, the scores of smashed schools and hospitals, the 20,000 houses ruined or damaged, they said: "Know where we went wrong in October? We interfered in our own affairs."

No one could then imagine that history would provide their tragedy with a hopeful epilogue, or cast up the betrayer Kadar as the resourceful architect of Hungary's current measure of freedom and prosperity. Once the Red Army came back, Hungary was clearly going to continue as a communist country. The question was, what kind of a communist country would it be? For the first two years Kadar earned a nickname, "The Butcher," as he busied himself with repression, reviving a new incarnation of the Communist Party and (under a new name) the secret police. But he soon proved adept both at getting the Kremlin to let him change the inflexible doctrines of communism that so

Both: UPI/Bettmann Newsphotos



Bespectacled Imre Nagy (here with villain Matyas Rakosi) tried to reach political compromise with rebels but was double-crossed by the Russians. Janos Kadar (at right) crushed the rebels, but has since helped Hungary grow rich and relaxed.

often have led to despair and bankruptcy. He also struck an unspoken deal with the Hungarian people: if they did not make trouble again, there was some chance of improving their lot.

There was, and is, no doubt about whether Hungary is communist. The land has been collectivized—individual ownership is strictly limited—and the state owns the major means of production. The government has—and sometimes uses—the machinery of repression. But, especially over the past 15 years, Kadar and a handful of brilliant Hungarian financiers have used the state's great power mainly to encourage, not stifle, individual initiative. The present economic system has been variously labeled as the New Mechanism and Goulash (or Paprika) Socialism. Hungarian experts sometimes describe it as "socialist, but with a tendency toward capitalism."

Visitors can see spectacular if superficial results in Budapest. Among people over 40, one senses a certain somberness. But in public the atmosphere is free and the streets are bustling, full of well-dressed, mostly cheerful people. Store windows are full of consumer goods, fancy dresses, modern gadgetry. Coffee- and pastry-minded clients of Gerbaud, Budapest's fin de siècle rival to Demels in Vienna, spill out onto beautiful Vorosmarty Square, their tables shaded by bright red, yellow, blue and white umbrellas, each one advertising a different product. Bookstores are jammed, though books critical of the Soviet presence in Eastern Europe are almost impossible to obtain.

Even Safeway-benumbed Americans may be bowled over by the overflow of food in Hungary: meats of all sorts at relatively low prices, mountains of mushrooms, piles of peaches, forests of fresh carrots. Hungary is invaded every week from both the East and West, with Russian shoppers dumbfounded by the range of choice in regional department stores, and so many Austrians crowding over the border to stock up that cars sometimes sit bumper to bumper for miles.

Outside the cities, people mainly work in farm cooperatives and collectives. Now, however, the collectives are run with an eye for profit (worker pay is partly based on productivity), and run, not as in the past by party hacks, but by trained agronomists or by able and successful peasants. Farm workers can receive small plots of land in the collective area, and are encouraged to work them after hours for their own advantage, selling what they grow at the market. Today there are 1.8 million such plots in use and small private producers turn out a third of all Hungarian food.

Similar incentive systems have been applied to industrial co-ops. Some 75 percent of all families have at least one extra job, some have two or three. There are no major private companies, but small associations of people can band together for after-work building, plumbing, contracting. Houses and residential condominiums are going up all over Hungary, many of them built in this way.

Some Party members hint darkly that Kadar, a dedicated communist who knew grinding poverty as a

child and young man, has gone too far. Western journalists crow embarrassingly over examples of free enterprise. Not long ago Kadar's clever financial expert, Janos Fekete, challenged a visiting U.S. press lord: "Why do you insist on calling 'capitalism' everything that is common sense?"

Hungary, however, has lately let prices rise to reflect the market, economically healthy but painful. Some Hungarians—mostly older people on pensions and those without the skill or enterprise to take on an after-hours job—are now suffering.

Critics of the regime cite these economic inequalities, widely regarded as the telltale marks of capitalism. They complain about Hungary's enormous loans: $11 billion so far, which subtle and skilled Hungarian financiers have extracted mainly from the World Bank and the International Monetary Fund. They also remind each other that Hungarian freedoms, so markedly in contrast to other Eastern-bloc countries, are nonetheless partial and, above all, swiftly reversible.

Travel, for instance. Hungary no longer has a guarded fence along its western border. Far better than the Soviet Union or any Eastern European country, it has solved a problem that rightly gives the East a bad name—the fact that under other Communist regimes the people are not free to come and go because they cannot be counted on to come back at all. Each summer thousands of Hungarians drive into Western Europe. In theory, if you have Western currency, you can go abroad as many times as you can pay for it. In practice, most Hungarians are eligible only once every three years because it is only once every three years that they are permitted to convert Hungarian money into hard currency for a trip abroad. Hungarians have no personal passports, either. If they want to leave the country, they have to apply to the police for a travel permit, an easy and relatively diplomatic way of maintaining effective government control.

The rising costs of Soviet empire

The Soviet Union acquired its Eastern European empire as a defensive buffer. In its early days as an imperialist power, it rifled occupied territories for railroad tracks and raw materials, often forcing captive peoples to sell to Moscow at a loss, regardless of the hardship caused or the damage to local industries. Today Soviet methods and dealings are more complex. The empire, in fact, must often seem more trouble than it is worth. Experts in Sovietology point out, though, that Russian attachment to Eastern Europe is based on more than defense or economics. "The empire," Seweryn Bialer has written, "is perceived . . . as the basis for the future expansion of Soviet rule and . . . as confirmation of the historical trend toward the 'inevitable' victory of socialism over capitalism."

It cannot be lost on the Soviet leaders that the face and the future of international socialism would look a lot brighter if the Soviet Union and more of the Warsaw Pact nations could match the personal liberty and prosperity lately reached in Kadar's Hungary.

Kadar himself has been farsighted and skillful. But the great bargaining power that he had vis-à-vis the Soviet Union, and the power that still enables him to

At night, from the Pest side, Danube gleams with light reflected from the quays and the Chain Bridge.

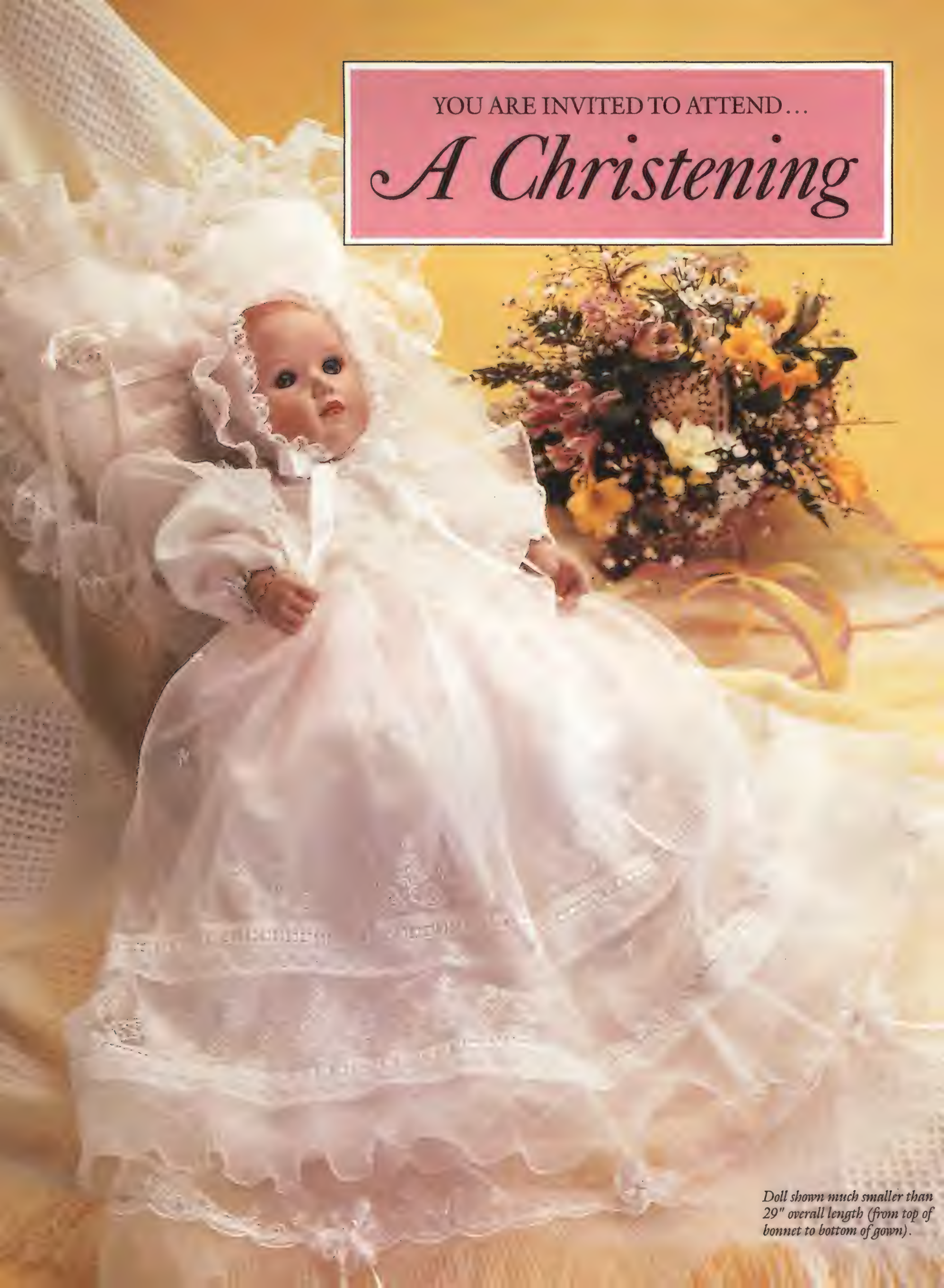
experiment with flexible, free-enterprising reforms, derives mainly from the willingness of Hungarians long ago to fight Soviet tanks practically with their bare hands. The revolution left behind the threat of future unrest if reforms were not made. It called the world's attention to the failure of Soviet policies. It demonstrated that even in a police state fully equipped with ideology, propaganda and lack of squeamishness, there is a point beyond which you cannot drive a strong and unified people without a certain peril.

Before I left Budapest in 1956, I asked a tough-looking young man carrying a submachine gun what sense there could be in taking on the whole Russian Army. He was remarkably clear on that subject. "If we don't fight now, nothing will change," he said. "But if enough of us get killed, something may happen." As it turned out he was right, though not exactly in the way that he expected.

At left is a neo-Baroque palace, now a museum,
once used by Habsburg emperors on state visits.

YOU ARE INVITED TO ATTEND...

A Christening



Doll shown much smaller than 29" overall length (from top of bonnet to bottom of gown).

Announcing a sumptuously beautiful porcelain christening doll embodying the precious innocence of a newborn baby.

Wearing an exquisite Victorian gown . . . and a 22kt gold-clad christening bracelet inlaid with the birthstone of your choice.

A baby's beauty . . . there is nothing more enchanting or appealing than that very special beauty at christening time – when proud parents formally present their newborn child to family and friends for the first time.

Now, the unforgettable charm of a radiant newborn at christening has been captured in a magnificent new collector doll from the Danbury Mint. This beautiful doll exudes the warmth and magic that only newborn babies possess . . . and at eighteen inches long is true to life size.

A hand-tailored gown of the finest fabrics.

The Danbury Mint's christening doll is dressed in a truly sumptuous gown which extends more than ten inches longer than the doll itself.

This lavish hand-tailored gown is a dream come true – with ruffled lace, pleated flounces, satin ribbons and pearl-like beads. Even the satin undergarments and slippers show the same attention to detail – trimmed to perfection with lace and frilly ribbons and finished with little satin bows.

In every way, our doll's elaborate ensemble is reminiscent of the gracious Victorian Age, when mothers dressed their infants in the most elegant of fashions.

The precious innocence of a baby.

Your eyes will be immediately drawn to the enchanting little face nestled amidst the lace and ruffles of its adorable embroidered bonnet – aglow with the sweet and tender innocence so unique to babies. And so astonishingly lifelike that the precious little mouth seems about to break into an engaging smile that will take your breath away.

The doll's facial features are individually hand-painted by skilled artisans.

Fine bisque porcelain . . . beautifully hand-painted.

Only when the christening doll is before you will you be able to fully appreciate its remarkable crafting. The doll's head is sculptured of fine imported bisque porcelain and meticulously hand-painted. In the tradition of the finest collector dolls, the dainty hands and feet will also be crafted of bisque porcelain.

The doll's darling face wonderfully captures the heartwarming loveliness of a newborn baby.

A 22kt gold-clad christening bracelet – with the birthstone of your choice.

Each doll will have its own *embroidered, heart-shaped satin pillow,* together with a personalized, serially-numbered Certificate of Ownership. And, as a unique memento of the important event, your doll will have its own *22kt gold-clad christening bracelet – complete with the birthstone of your choice* – to wear on its tiny wrist (details to be provided at a later date).

An extraordinary value.

The Danbury Mint is offering the christening doll for just $170. A remarkable price indeed, considering the exquisite quality, superb craftsmanship, and the doll's generous size. Dolls of similar size and complexity currently sell for substantially more!

Moreover, it can be acquired exclusively from the Danbury Mint.

Send no money now.

To reserve your doll simply return the Reservation Application. You will be billed in four convenient monthly installments of $42.50 each. If you wish, you may charge each installment to your VISA or MasterCard. Of course, if you are not satisfied, you may return your doll within thirty days for replacement or refund.

Please respond promptly.

We anticipate an enthusiastic response to this fabulous porcelain collector doll. So please, in order to receive your doll as soon as possible, mail your Reservation Application now – don't miss out on this very special christening!

The doll comes with its very own 22kt gold-clad christening bracelet . . . complete with the birthstone of your choice.

The Danbury Mint • 47 Richards Avenue • Norwalk, Conn. 06857 ©DM

RESERVATION APPLICATION

The Danbury Mint
47 Richards Avenue
Norwalk, Conn. 06857

A Christening

Please return promptly.

Please accept my reservation for *A Christening,* a doll expertly crafted in fine hand-painted bisque porcelain and elaborately dressed in an exquisite Victorian gown. Accompanying the doll will be a heart-shaped satin pillow, and a 22kt gold-clad bracelet inlaid with the birthstone of my choice (details to be provided at a later date).

I need send no money now. I will pay for the doll in four convenient monthly installments of $42.50 each,* the first being billed before shipment of my doll. If I am not satisfied, I may return my doll within thirty days for a replacement or refund.

**Plus $1.25 per installment for shipping and handling.*

Name _____
PLEASE PRINT CLEARLY

Address _____

City _____

State _____ Zip _____

☐ Check here if you want each monthly installment charged to your: ☐ VISA ☐ MasterCard

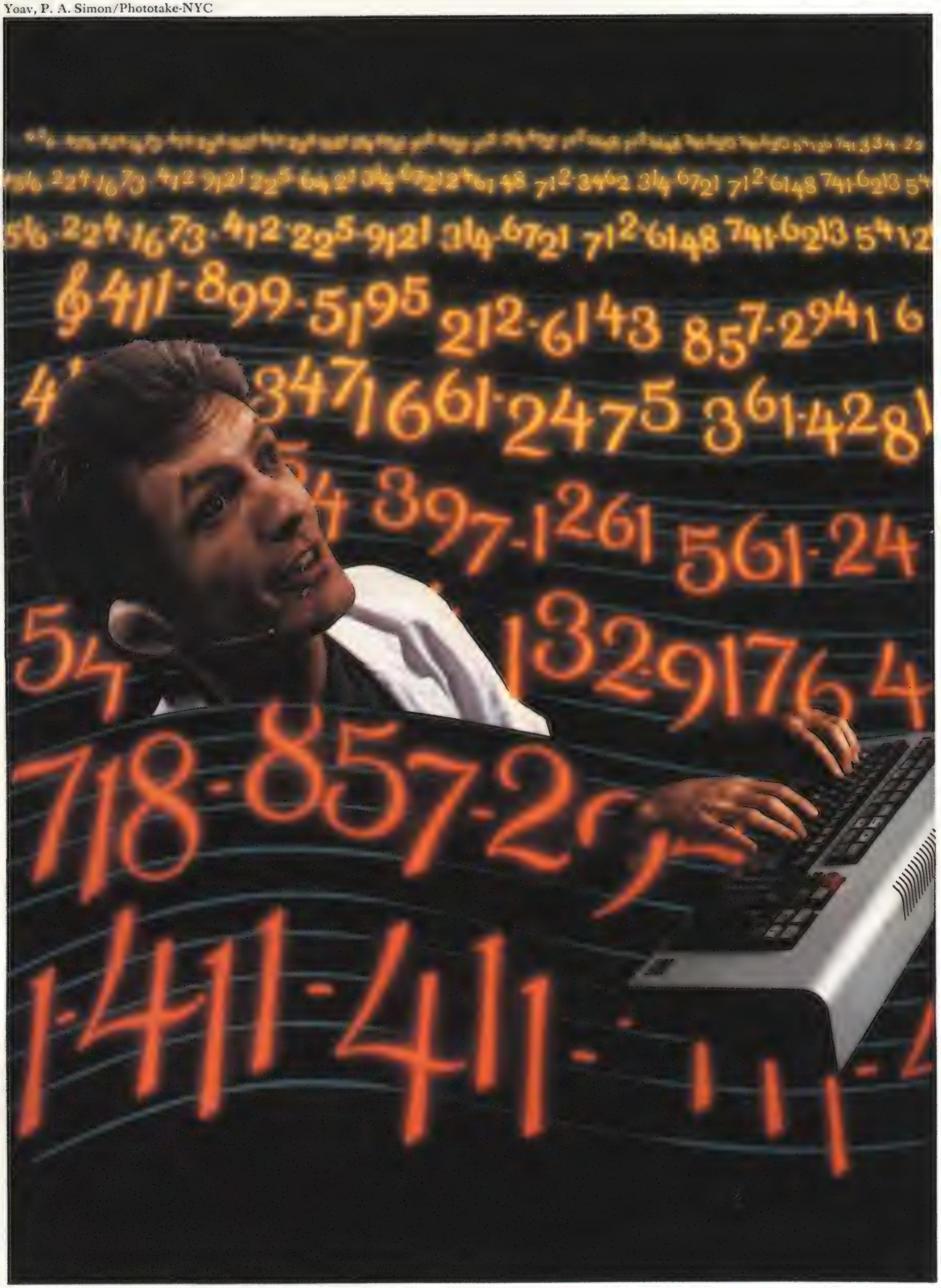
_____
Credit Card Number Expiration Date

Signature _____

Allow eight to twelve weeks after payment for shipment.

B-123

Yoav, P. A. Simon/Phototake-NYC



By Fred Hapgood

At 411, it's simply a matter of keeping in tune with the numbers

Aided by modern technology—and operators with phenomenal memories—directory assistance can handle our demands 'allegro'

Sounds gusted past in clots, volleying like rain against a tin wall. If robots mated like frogs, in big noisy aggregations, they might sound like this. "There are the clicks, the clatters and the snaps," Hank Watson said. His finger swung around the room. "Each click," he continued, "means that a customer is coming in; each snap that the machine is looking for an operator. And each clatter that one has been found and that the call is being passed on. On a busy day this machine handles 400,000 calls."

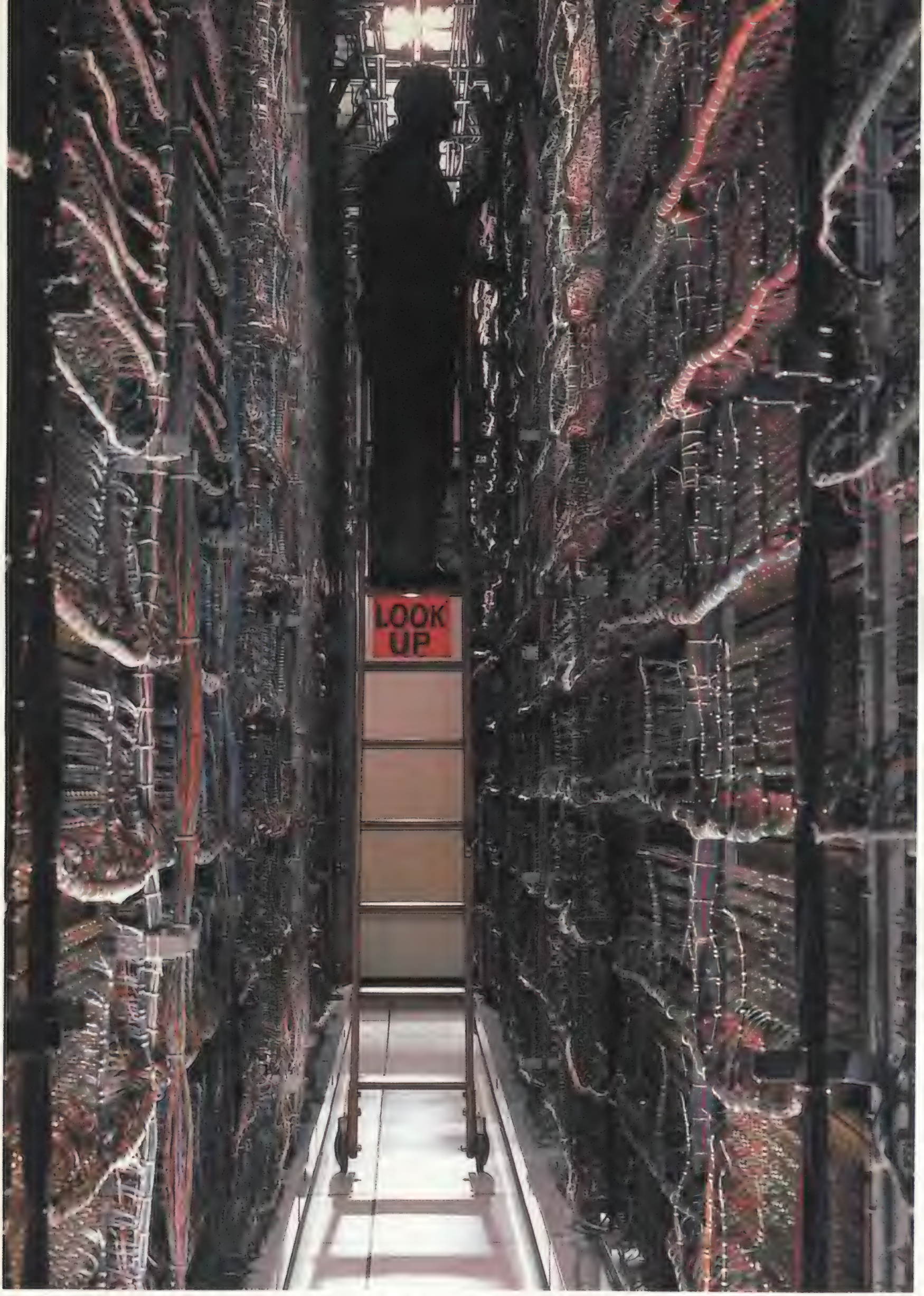
What this means is that every busy day, across most of New Jersey, from Elizabeth to Cape May, approximately that number of people start to make a phone call, realize they do not know the number and call New Jersey Bell for assistance. On average, that organization solves each problem, from the moment the petitioner finishes dialing 411 (or 1-609-555-1212) to when he hears the last digit of the number he wanted, in 22 seconds. In that third of a minute a free operator is located and connected; the caller's problem is grasped; the desired number is identified and plucked from among, in this case, 4.5 million listings and read, usually by a computer. Directory-assistance (what used to be called information) operations must be the most efficient and successful problem-solving organization in the history of civilization. How, I asked New Jersey Bell, do you do it? How do you deal with the accents, the vagueness, the diversity of human needs? I was put in a car, taken to a location I have been asked not to disclose and introduced to the No. 5 Crossbar.

The Crossbar is 18 walls of relays, each one foot thick, 12 feet high and almost 30 feet long, hanging like great sheets set out to dry in a room the size of a high school gym. At any instant, said Watson (p. 71), whose responsibility this gadget is, the Crossbar can juggle 1,500 incoming calls among 356 operators. The diagnostic equipment, the telephonic equivalent of a flight recorder, watches 7,000 processes simultaneously. The Crossbar's operations are so complex and its tolerances so precise that it is run entirely on direct current (AC is too fidgety, too variable). "Sometimes you get 59 cycles a second and sometimes 61," technician Elvin Morris said, shaking his head. Around the end of the decade the Crossbar is scheduled to be replaced by a computer, but until then a person can sit inside, like a mouse in a pinball machine, and listen to the waxing and waning of interest in unfamiliar phone numbers. "When something happens, some fire or disaster, is there a change in the pattern?" I asked. "Sometimes," Watson replied. "The momentum, the rhythm, builds and builds, greater and greater, to the point where you wonder where it's going to stop."

Great machines like the Crossbar, a redwood among mechanisms, are invented by hundreds of persons working over decades. Their creators are cultures and eras rather than individuals. Nevertheless, certain turning points suggest themselves. In 1879, for instance, a Dr. Moses Greeley Parker of Lowell, Massachusetts, approached the executives of the local Bell company with the proposal that customers be identified by the number of the plug socket connected to their phone instead of by name, which was then accepted practice. According to John Brooks, a historian of the telephone industry, management was skeptical. Telephones then were expensive, which meant their natural market was a segment of society sensitive to the distinctiveness of their family names. Put simply, the executives feared that the Lowell equivalent of the

When calls flow in at four a minute, operator David Callahan feels "a rhythm emerge and begin to build."

Photographs by Yoav/Phototake-NYC



New Jersey Bell technician checks one of Crossbar's 18 walls of relays—each is 12 feet high and 30 feet long.

The machine assigns a new call to the operator who has been idle the longest—measured in milliseconds.

Astors and the Whitneys would not appreciate being referred to as "91" or "122."

Dr. Parker pointed out that the telephone was rapidly establishing itself as an essential service. More and more often it was the instrument that summoned doctors in an emergency. Yet sooner or later, some substantial fraction of the operator force would be incapacitated by an epidemic, and temporary replacements would have to be found and trained.

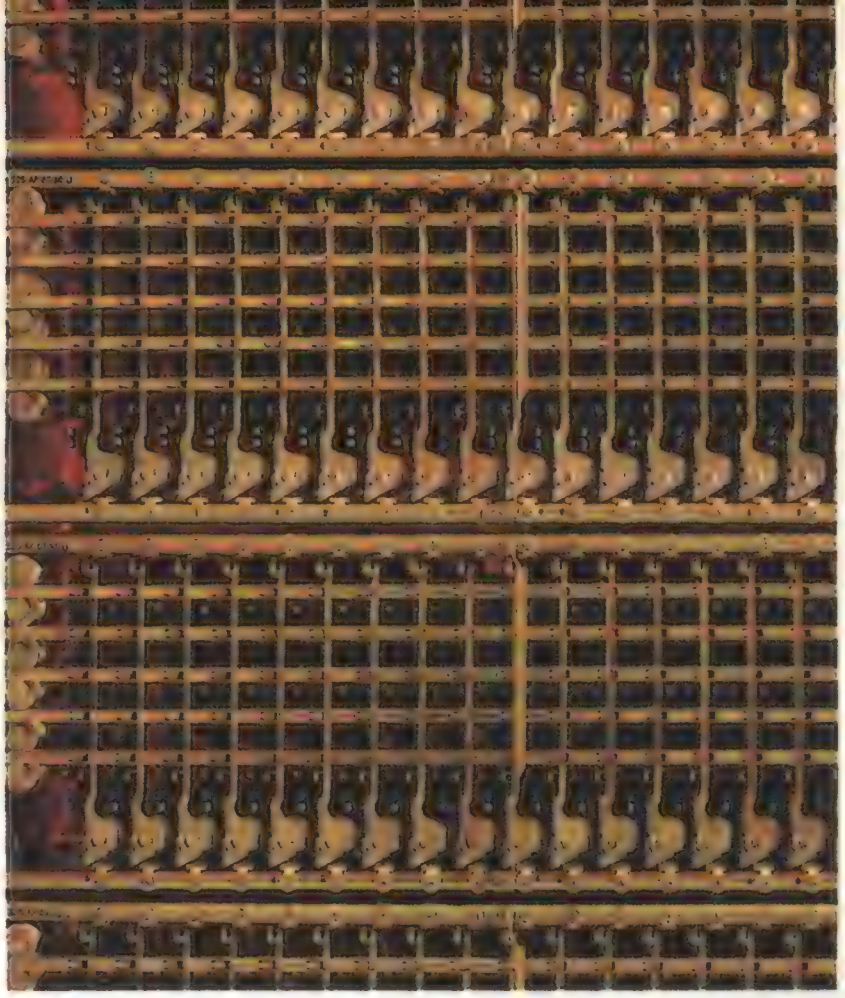
In such a circumstance, just finding people willing to serve might be difficult; requiring them to memorize which sockets were associated with which names would drag the training out to impractical lengths. The phone service should be organized, the physician argued, so that a total novice could be taught how to provide at least minimal service in the shortest possible time. The executives were persuaded, perhaps because a particularly virulent measles epidemic was raging in Lowell at that moment, and labeling customers by number rather than name soon became standard form.

A second germinal event took place in the late 1880s, when, it's said, a Kansas City undertaker named Almon Strowger began to suspect that the operators of that city were diverting calls to his competitors. Calling to complain, he found himself forced to talk with "girls" who "cussed" him. This unnatural situation drove him to an extraordinary peak of irritation, and in 1891 Strowger proudly unveiled his "girlless, cussless telephone"—the first automatic exchange system. With it, a customer could take control of the phone company's equipment directly and connect his own calls.

Assuming, of course, that he knows the number. If not, and the directory proves unhelpful, then there is nothing for it but to call the phone company and speak with a real person. History is full of double-reverse twistbacks and here is another: for the past several decades, those calls have been made using modern versions of the switch Strowger invented to free us from having to speak with operators in the first place.

Suppose a citizen of Trenton, whom we shall call Jane, develops a hankering for pizza. She recalls a certain bacon-and-eggplant concoction served by an establishment found on Main Street and known to her as Joe's. (Any resemblance to a real pizza parlor, living or dead, is purely coincidental.) Joe's number not proving conveniently at hand, Jane calls 411.

The part of the Crossbar that answers Jane's call—click!—is called a customer link: first thing, it connects Jane's call to a specific internal circuit, say Circuit 27, a function analogous to giving it an address. Next it publishes that address throughout the system. Thereafter, whatever humans or computers required to deal with Jane's problem will be brought to bear by simply switching to that number.



"Customer link" gives every caller an "address," then announces it to system through these switches.

One Crossbar component the customer link keeps closely informed of developments is the "switch," which might be thought of as a mechanical facilitator, or matchmaker. "New business," it tells the switch. "Circuit 27." At once the switch rings up still a third bank of machines: the operator links. Each of these is connected to a certain fraction of the available operators—sometimes all of them—and keeps running accounts, updated every few thousandths of a second, as to which operators are free and for how long.

It is not at all out of the ordinary for the switch to have as many as 250 operators on tap, through several banks of operator links, at any one time. Most and perhaps all will be nowhere near Jane's phone or the big machine, but scattered around the state in local offices. As far as the switch is concerned, however, they might as well be right in the same room, for it and these offices are connected with microwave links of such speed—50 to 200 times faster than those by which signals are usually sent over phone lines—that distances of a few hundred miles mean almost nothing.

When the operator link answers the call from the switch—snap!—the switch informs it that they have a new piece of work to deal with and asks the operator link about its situation. The operator link consults its accounts, looking for an idle operator. "No sweat," the operator link might say to the switch. "Operator 53 hasn't had anything to do for 13 milliseconds now.

Fred Hapgood lives in Boston and specializes in science and technology. His book, Why Males Exist, *examines the evolution of gender systems.*

The giant network of '411'

In printer room, Judith Cottone studies call patterns to predict future need for operators across the state.

Time she woke up." "The call's on line 27," the switch says and—clatter!—hangs up. The operator link then dials line 27 directly and connects it to operator 53. Jane and her operator are now face to face, so to speak. "What city, please?" he or she might ask. All this takes about six seconds. On a busy day.

In the earliest years of the industry, Jane would have found herself speaking to a he; in fact, to a boy, as many telephone offices were set up by telegraph companies who simply transferred their messenger corps into these duties. But the boys caused all kinds of trouble—they played tricks with the wires and talked back rudely to subscribers. In a very few years, the companies switched to hiring females only.(To be precise, unmarried females under the ages of 17 to 20, depending on the company. An operator who married was expected to resign.) "The work of successful telephone operating," explained F.G.C. Baldwin, another historian of the industry, "demanded just that particular dexterity, patience and forbearance possessed by the average woman in a degree superior to that of the opposite sex." In addition to these important virtues, women had the extra advantage of receiving wages that were typically a third of those paid to male laborers. Finally, they were tractable, easy to train for a job that demanded a lot of adaptation. There were long scripts ("I'm sor-ry that lie-un is bus-y") to memorize, extensive drills in manipulating the boards, and speech comprehension. The first chief operator in the

Technician Elvin Morris (left), Crossbar manager Hank Watson review "trouble cards" to trace malfunction.

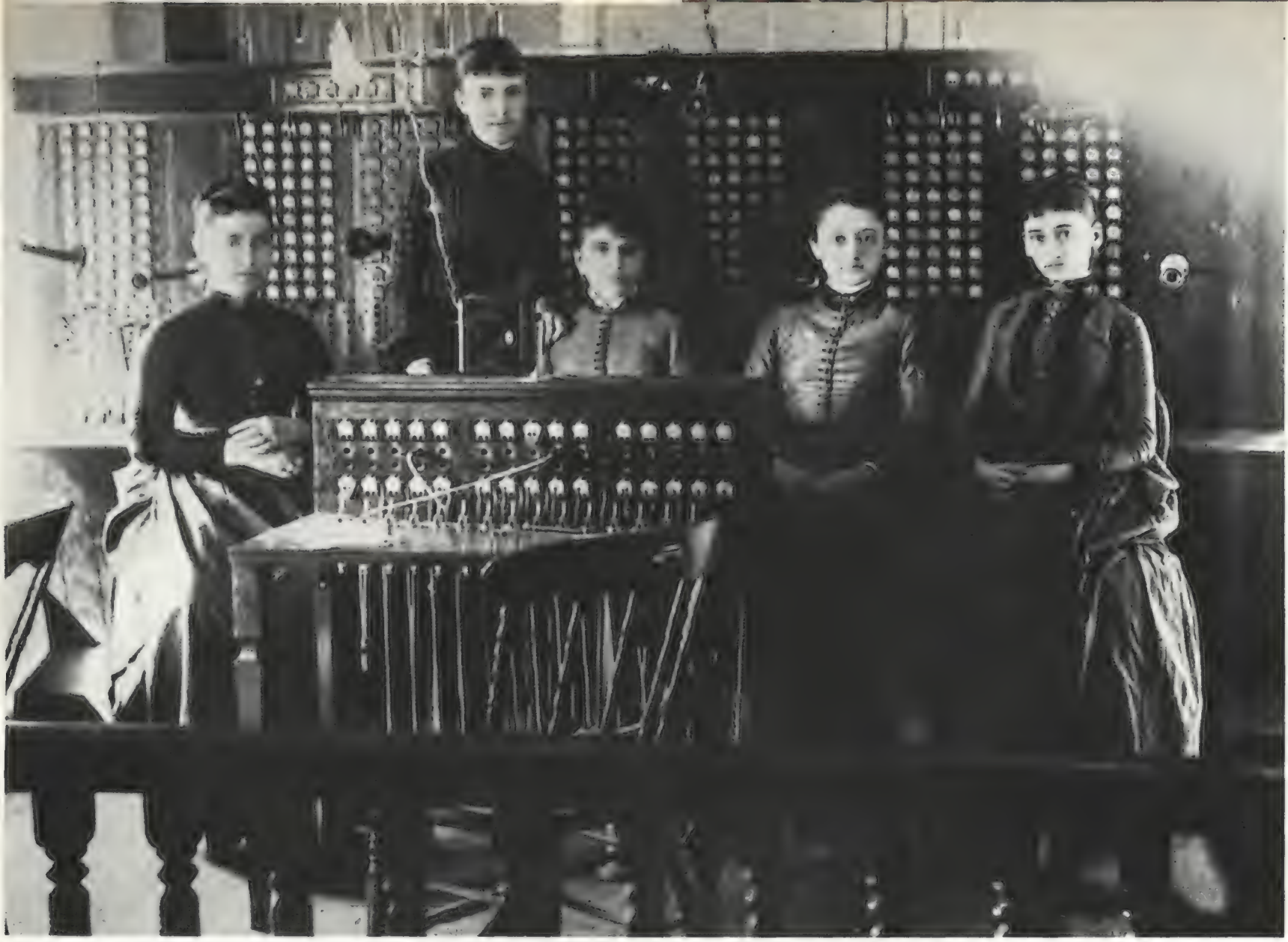
As many as 1,500 calls can pass through this bundle of wires in a given instant; a busy day brings 400,000.

Bell System, Katherine Schmitt, defined the ideal: "The operator must be made as nearly as possible a paragon of perfection: a kind of human machine."

And, at least in the town where I grew up, a paragon of perfection was exactly what they were. One year my next-door neighbor was desperately in need of bed rest. Our local operators knew this, as they knew everything, and throttled back the ring to a single "ding," sufficient to alert his family without disturbing him. The operator on duty always seemed to know where the doctor and the fire chief were, and if she did not, would, in an emergency, track them down herself. Within limits, they took and relayed messages and would tell you the time and weather and the bus schedules and if school had been canceled that day. I used to call to find out what was playing at the movies and could hear the operator turning the pages of the newspaper as she looked for the ads. "Once someone called and said she was going to leave the phone lying off the hook next to the crib, and then go visit Sarah, across the street," an old hand at operator services remembered. "She wondered if we would please listen in and call her if her baby started to cry. And we did it."

While this was surely the golden age of operator services for customers, the executives of what was then *the* phone company, AT&T, had a different perspective entirely. Looking ahead, they saw nothing but bad news. The primary reason, according to Judith Cottone (opposite), assistant manager for force planning at New Jersey Bell, was that call volumes were projected to increase by five or six percent for many years into the future. Had the system continued to be organized by local offices, she says, "we would have had to put an office on every street corner." Worse, since increases in call volumes are positively correlated with economic growth, the local office system committed AT&T to buying more and more property in exactly those neighborhoods where real estate prices were rising fastest. This was unpalatable, and the phone company decided to rebuild the system into one in which directory-assistance operators would take calls made hundreds of miles from wherever they happened to be working. They took their problem to Bell Labs, and Bell Labs, building on a tradition of inspired switch design, came forth with a modified crossbar.

Thus began a new age. Information operators no longer gave out the school-lunch menu. They not only didn't know where the fire chief was, they didn't know who he was. They lost all interest in being social, not even hanging on long enough to be thanked for their trouble. The very name of their service had changed to directory assistance. On the other hand, they certainly were *fast*. The new style of operator was on the line, firing off questions like an attorney conducting a cross-examination, before your dialing finger got half out of the dial plate. Sometimes it felt as though she had been waiting, coiled like a spring, on the other end. And then in seconds she would be gone, leaving



In 1885, calls were placed manually by operators such as these in Trenton. A Kansas City undertaker's dislike of the human element in the system led to invention of automatic "girlless, cussless telephone."

your number decaying in short-term memory. It was like jumping through a revolving door that whirled around ten times a second. The humans behind those voices seemed to come as close as anyone to Katherine Schmitt's ideal of "a kind of human machine."

Apparently, though, they make it look a lot easier than it is. According to David LeGrande, health and safety director for the Communications Workers of America, "Directory assistance is one of the most stressful jobs in telecommunications. It's always been a high-pressure job—before computers, supervisors eavesdropped on calls to make sure they were being handled rapidly *and* politely (in accord with the policy 'the customer is always right'). Now that calls are routed, timed and randomly monitored by a computer over which the operator has no control, the job can result in even more anxiety and feelings of alienation." LeGrande continues: "It's said that having a voice synthesizer read the requested number cuts in half the time the operator has to be on the line, but it isn't helping morale. Many operators find the shortened interaction with customers eliminates the sense of personal contact that used to be a major plus in the job. They're also worried about job security now."

Some labor analysts believe that directory-assistance operators, and telephone operators in general, are just the first to start working under the conditions that will eventually define most of the nation's workplaces. Their essential characteristic is that they are computer-driven—computers pace, monitor and grade every act. Curious about the reality, I asked the officials at New Jersey Bell if I could speak with a directory-assistance operator. They pulled David Callahan off the line.

Why David Callahan? Perhaps to discount whatever stereotypes about operators an interviewer might harbor. Callahan was tall and thin, appeared to be in his late 20s and was stylishly dressed. And poised? Imagine this: Callahan had his immediate supervisor on his right, a representative of New Jersey Bell's media-relations department on his left, while a reporter sat facing him, writing down everything he said. The first question he was asked was, "Isn't your job incredibly boring?" Yet the only sign of stress he showed, if it was that, was that he leaned forward slightly. "It needn't be," he told me. And here's why . . .

Twenty to 25 years ago, when services were still local, operators found numbers the same way subscribers did: by looking them up in directories. The only difference between their books and those offered subscribers was that theirs were updated more often. This obvi-

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ously became unworkable when the service was reorganized regionally—an operator might have had to work from dozens of directories. The system that replaced it is organized around a single computerized data base that contains all the millions of numbers in a given area code. An operator extracts a specific number from this base by "interrogating" it with a series of "search commands," each progressively narrowing the range of possibilities. Often many such commands are necessary. For example, if an operator were to respond to Jane's pizza request by entering only one command, perhaps to search under "Joe's," the base might reply with about 1,000 candidates. Even "Joe's" in "Trenton" might prove insufficiently precise, as would "Joe's" on "Main Street." "Joe's" on "Main Street" in "Trenton" would probably prove useful. "Searching logic," as this field is called, has developed quite a bit in the past two decades, and an operator who follows its rules, step by step, can often find the right number even when customers provide relatively oblique pieces of information. This is one way to get the job done.

There is also a second: what Callahan calls "personal memory." As impotent as human memory would appear in the face of 4.5 million listings, it can in fact play an enormous role in the job. Many of the numbers asked for—major businesses, hospitals, many doctors, police and fire departments, all the dial-it services, area codes—come up every day or two. A retentive operator might be able to give these numbers outright, without even entering the commands required to search the data base to drive the voice computer. "It's not standard practice to quote from memory," Callahan said, "but a lot of good operators do it. It can mean completing a call in eight seconds."

Boy operators were soon replaced; they played tricks with the wires and talked back rudely to customers.

Or memory can allow an operator to enter the keystrokes that will select the listing and pass it on to the voice synthesizer by reflex, without taking the time to read anything appearing on the screen. And finally, there are hundreds of special abbreviations and shortcut search commands, developed to call up specific listings in four keystrokes instead of eight, or eight instead of 12. ("AMF. HOT," for instance, will return the number of the American Hotel in the city of Freehold.) A good operator knows all of these, even though the shortcuts apparently have no central listing. "There are operators in this office," Callahan said, "who could work a half-day by quoting from memory."

Calls to the beat of ZZ Top

A good DA operator, he continued, works out of personal memory as much as possible, and the job is satisfying to the degree that it can be done out of personal memory. Sometimes when the calls are flowing in, four a minute, and personal memory is knocking them out of the box, one after another, a rhythm emerges and begins to build. The calls lay down the beat, the bass line; the melody floats out of another department in personal memory, picks up the bass and begins to carry it. This morning, Callahan said, the inquiries evoked the latest ZZ Top album. Sometimes he finds himself beating time on the floor, on the sides of his terminal. What makes this possible, he says, is knowing. Not thinking; when a call comes in that takes thought, perhaps because the customer has a strong accent, or the information he gives is unclear, or there are too many possibilities, you lose the rhythm. The music stops. What starts it again is knowing. And it is the repetition that makes the knowing possible. And that, he said, leaning back, is why the job isn't boring.

The responsiveness of directory assistance depends on more than technology, since the fanciest switch in the world cannot substitute for an operator if one is not available. The presence of this "extra" operator depends on the company's having predicted the number of calls that will arrive with enough accuracy, and far enough ahead of time, to have the right number of people in place. The forecasts made at New Jersey Bell are "right" within only three percent, despite the fact that call volumes fluctuate from a few hundred to more than 100,000 an hour, and that manpower forecasts must be made two weeks ahead. In a nation of prognosticators, directory-assistance planners may be right more often and more accurately than anyone.

This accuracy seems especially remarkable given the circumstances in which people use DA. People turn to directories when the number of interest is in neither their memories nor their address books: that is, when

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Operators like Wendy Vetter work under pressure; fastest can complete about 1,400 calls in a day.

they are stretching slightly beyond their daily routines. They call directory assistance when the directory turns out to be inadequate or inconveniently located or when they are feeling too lazy or busy to bother riffling through it personally. Neither set of circumstances seems easy to forecast; their product would have to be a formidable bit of crystal-gazing.

The New Jersey Bell planners deal with these difficulties by ignoring them. They do not spend a lot of time worrying about the physics and chemistry of directory-assistance calls, about why people call, when and for what. Their success is derived from the exploitation of one of the great ordering forces of the natural world: the force known as the Law of Large Numbers, which brings order from chaos, harmony from turbulence, pattern from randomness, and a responding operator in an average of six seconds.

The Law of Large Numbers states that order is a function of the scale of observation—that if you get enough instances of chaotic behavior into the same room, conceptually speaking, they will start to fall into line. The classic example is the tossing of a coin: the outcome of a thousand coin tosses is a lot easier to describe than that of a few tosses. Over wide enough scales, random behaviors cancel themselves out, and forms and qualities of order emerge that would have been unobservable in a handful of cases. When the phone company reorganized directory assistance in the mid-'70s they decided to take full advantage of the force of this law by channeling huge numbers of calls to a single distribution point—the Crossbar—and then dealing them out to a single operator force.

After 4 in the morning, the juices start to stir

Three cycles emerged. One might imagine the first as a tidal wave that floods in around 11 A.M., then falls slightly before and during lunch, rises during the afternoon, though not to morning levels, and then ebbs, faster and faster until the moment is reached that divides late night from early morning. At this point, practically no one in the Garden State seems to have any curiosity in making nonroutine phone calls. Four operators might be on duty for the whole state. Then, after 4 A.M., the juices of adventure begin to stir. The tide flows back into the Crossbar; the snaps and clatters rise in clouds, faster and more frequently. Only seven hours later, the switch will be dealing out 50,000 calls an hour. There is also a day-of-the-week rhythm that peaks at Monday, dips slightly through the middle of the week, rises again through Friday and then slips down over the weekend. And a month-of-the-year cycle, with a high point in June, a fall toward October, a bounce up to December and then a steep fall in volume which does not reverse until March.

These cycles are almost as regular as breathing or the diastolic rhythm of the heart. Thus when a DA manager sits down to figure out how many operators will be needed Wednesday after next from 3:15 to 3:30 P.M.—manpower requirements are calculated to the quarter-hour—all he or she needs to do is pull the record of the past few Wednesdays during those 15 minutes and do a little fine-tuning. "First I ask myself if there is anything unusual about that particular day," says Judith Cottone, who performs these calculations for New Jersey Bell. "Is there an election? If so, then the vote pullers are going to be calling. Easter Sundays are much busier than normal Sundays. When the Super Bowl is being played nobody calls until halftime. Unless the outcome is a foregone conclusion, in which case fewer people will be watching." By the time Cottone has finished these considerations, and barring acts of God like a snowstorm or the announcement of a Bruce Springsteen concert, she will have a secure grip on a little corner of the future.

I stand by my brandy. E&J.

80 Proof Brandy. E&J Distillers, Modesto, California. © 1986

Can these techniques be applied to the future of directory assistance itself? Apparently not. The consensus of those I spoke with was that DA will develop in a very different direction over the next two decades from what it did in the past two. "There is not going to be one huge switch receiving and distributing all the DA calls made everywhere in the country," said Jim Hollowell, a planner for Bell Atlantic, New Jersey Bell's holding company. Calls are not going to get completed any faster than four a minute. While some believe that American telephone companies (whether those that used to be part of AT&T or the new breed of competitors such as MCI, Allnet and Sprint) might follow the example of the French and make directory-assistance information available to home computers, Hollowell remains skeptical. He also thinks that the day when computers will be able to understand spoken requests directly is a long way off.

However, there will be improvements in directory assistance, he predicts. "For instance, somebody might offer a service so that after the operator retrieves the number, the caller can press a key and the call will be completed," he said. "But the possibilities go far beyond that. There is an entire information industry out there, carrying everything from Dow Jones data to recipes. But using the services is often difficult; some require a week's training. What's needed here is a human interface." A human interface? "Someone with both human and data-base skills," he explained.

"There's a raft of services waiting to be offered. Wake-up calls. Reminder calls. Checkup calls. Suppose you have an aged parent somewhere and you'd like to have someone call him once a day to see if he's all right. Someone with a pool of operators at hand might be able to offer that. Today telephone companies aren't allowed to provide many of these services. But in the future they probably will be. And jobs will result for 'operator/secretary/attendants.' "

I forgot to ask Hollowell if he thought that someday there might be a service in which an operator would call parents if their baby were crying. But he was so enthusiastic, so positive, that I'm sure he would have said the idea had promise. Some people think anything is possible.

Microwave antennas transmit signals up to 200 times faster than standard lines. They allow phone company to reduce costs by distributing calls from the Crossbar to operators scattered across the state.

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Musée Matisse, Le Cateau

By Bennett Schiff

Henri Matisse's period in Nice as a 'hewer of light'

His son-in-law coined the phrase, and its accuracy can be seen afresh in a current exhibition of paintings from those years

Art Institute of Chicago

Self-portrait, 1918, was painted in cramped hotel quarters, as this rather stiff portrait might suggest.

In November 1916, Henri Matisse, in Nice to live and work rather than to visit, seeking relief from the hard Paris winters he no longer had to endure, found only rain, day after day of it.

"It never stopped raining," he recalled. "Forced to work in a gloomy hotel room, I was reduced to painting my umbrella standing in the slop jar." He packed to leave. The sun came out. He wrote to a friend: "When I opened my window and thought how I was going to have the light before my eyes every day, I couldn't believe my luck." He unpacked. And stayed in the area more and more until he died 38 years later, Paris having become the place he went to renew his cultural and social ties.

Matisse was 46 when he went to Nice that year, certainly a late age to experience, for the first time in his sober, work-filled life, what became a period of liberation. That was what it was to be, the years from 1916 to 1930, his early Nice period, the *niçoise* years, now the subject of a concentrated showing of his work at the National Gallery of Art in Washington. The exhibition is made possible by a grant from GTE Corporation and will be on view from November 3 through March 29, 1987. It will not be seen elsewhere.

Long after you have seen a show of Matisse's work, a specific memory of its generalities remains. It is of a room radiating light, of energized patches of color, of a feeling of ease and of delight, of balance, rhythm and harmony. Everything is in place. As if by ordination, it may not be changed. For what it is cannot be better. What it contains is, in so many senses of the word, enlightenment.

Large Interior, Nice, 1919 or '20, is notable for its lambent color, wide angle and oblique view.

The image is ludicrous but you have to admit that if Henri Matisse had been a dancer, he would have been Fred Astaire. We are thinking of his paintings, to be sure. Physically, in his later years, he had the general shape of a dumpling. When you think of him you have the perfect representation of the good, gray man—the portly figure, the grave expression, a tower of the establishment, doctor, lawyer, executive. The pictures are something else. They dance. They have perfect pitch. He showed the world a new kind of space, design and light.

Although by the time he got to Nice he was already one of the young century's most expensive and highly regarded painters—two distinctions maintained until his death, which rightfully continue—it is his work of the early Nice period that has been generally condescended to by many experts (if not the public), who on the whole consider it to be lacking in structure, somehow superficial because so beguiling, altogether too easy, as against his earlier and later work. Alfred H.

Barr jr., for example, in his book on Matisse, an exemplary and admirable landmark, finds the work of that time "inoffensive and traditional." His backhanded tribute to the *niçoise* works comes out as "magically harmonized in a hedonistic, sensual and charming art with no challenging or difficult moments. . . ." Against this prevailing assessment, the National Gallery showing is the first attempt to regard the paintings of the *niçoise* period in depth.

It may well be that Matisse, having survived long periods of despair along with the mounting mental and physical strain of a man abnormally obsessed with work, looked to the Côte d'Azur as a kind of paradise, and felt that he had earned time for a change of pace and tone.

The work he did there is indeed more charming than what preceded it, though not as loftily triumphant and simple as his design for the Chapel of the Rosary in Vence and the final paper cut-outs. These are on a plane of realization that distinguishes all of history's greatest masters, a kind of apotheosis of color, light, space and spirit. It was for good reason that his son-in-law, the art historian and scholar Georges Duthuit, in a beautiful phrase, called him a "hewer of light."

None of this, from the masterful to the merely wonderful—for he seems rarely to have painted anything less, once he got started—came easily to Matisse. He came to painting only as an adult, a toiler in the thickets of French country law when, bedridden for almost a year after a siege of appendicitis, his mother gave him a box of paints, thereby changing the course of his life and of 20th-century art.

The effect of that simple box of paints was immediate. Long afterward, Matisse remembered: "When I started to paint I felt transported into a kind of paradise. . . . In everyday life I was usually bored and vexed

Musée National d'Art Moderne/Centre Georges Pompidou, Paris

Odalisque in red culotte, 1921, is a sensuous study of Henriette, a favorite model, done in his apartment.

by the things that people were always telling me I must do. Starting to paint I felt gloriously free, quiet and alone." Even so, he didn't paint his first successful picture until he was 25, thus reversing the normal pattern of artists of genius who begin to draw, so it seems, as they begin to teethe. He was always a late starter.

His family was typically, classically French provincial middle class, characters that we might recognize in a Flaubert novel. His father was a dealer in grain, a hard man, exact, practical and correct. When, many years later, Matisse had achieved recognition and financial security, he proudly showed his father his fine new country house at Issy-les-Moulineaux, a suburb of Paris. Emile Matisse considered the pretty pond, the decorative trees, the flourishing garden and said:

Bennett Schiff is a member of SMITHSONIAN*'s Board of Editors. He wrote about the big Renoir exhibition in Boston in October 1985.*

Matisse had paid winter visits to Algeria and Morocco in 1911-13, and the influence is abundantly clear.

Baltimore Museum of Art, Cone Collection

Blue Nude (Souvenir of Biskra), 1906, predates *niçoise* works and was in the Armory Show of 1913.

"Yes, I see that there's a lot of land going to waste."

Matisse's mother painted china in the way that so many wives of so many similar husbands, in fact and fiction, have done.

Matisse was born on New Year's Eve 1869 at his maternal grandparents' home at Le Cateau, a small town not far from the Belgian border. His parents lived at nearby Bohain. He went to school in the provincial city of St. Quentin, the main urban center of the area, and in 1887 went off to the University of Paris to study law. Back in St. Quentin after two years in Paris where, as usual, he had done his duty without enjoying school that much, he settled down to more of the same. To break up the monotony of toiling in the thickets of French provincial legalities, he got up at dawn every morning to attend a drawing class at a school for tapestry and textile design. When it came to hard labor, whether it was law-clerking or painting or sculpting or drawing or printmaking or designing some of the most beautiful books to be seen since the Middle Ages, Matisse was indefatigable.

In 1931, at the time of the great exhibition of his works at the Museum of Modern Art in New York, he told an interviewer: "I have been working from morning to night every day for 40 years." That grew to 50 and 60 years and continued until he died in 1954 on the threshold of his 85th birthday. Of his beginning, he had said, ". . . So I plunged headlong into the work at hand, following the principle drummed into me all through my youth, which was 'Hurry up!' "

It wasn't that simple, however, to begin. Matisse's father objected as a matter of course to his son's wish, after that year in an invalid's bed, to go back to Paris—but this time to study painting. And it was his mother, the painter of china, the bestower of a box of oil paints, who persuaded her husband to change his mind.

Matisse arrived in Paris in 1891 with 350 francs, supposed to last him for two years. If you wanted to be an artist you had to be prepared to go hungry. Matisse would eat half-portions, the price of a full meal at the time being 13 sous. After a while of this his father increased the allowance to 100 francs a month. He was, after all, a man of good sense. And he could afford it.

At first Matisse studied with Adolphe William Bouguereau, a painter his father could approve of, a quintessential academic, the opposite of all that Matisse would come to stand for. "You'll never learn how to draw," Bouguereau told the man who was to become one of history's supreme masters of line. Matisse didn't stay on and went to study with Gustave Moreau, who was so impressed with his talent that he arranged for him to be accepted in his studio at the Ecole des Beaux-Arts without having to go through the rigorous entrance requirements. Moreau was good for Matisse. A symbolist and fantasist, Moreau's work was rich in color, romantic in sensibility, highly individual. He

Private collection, Zurich

Festival of the Flowers, 1921, looks down on the Promenade des Anglais in Nice and the Baie des Anges.

The two women on a balcony at Hôtel Méditerranée are Henriette and Matisse's daughter, Marguerite.

was also an outstanding teacher who let his pupils develop in their own ways. He encouraged his students to make copies of the masters in the Louvre, and Matisse slowly, methodically and meticulously worked away. He copied Raphael, Poussin, Chardin, Fragonard. He met other young painters—Rouault, Dufy, Henri Manguin, Charles Camoin, Albert Marquet, André Derain—and he met that grand painter and encourager of young artists, Camille Pissarro. He began to look at the Impressionists who had made their debut only 20 or so years earlier. Pissarro introduced him to Cézanne's work, which had a profound effect on him.

And, in 1898, he married Amélie Parayre, with whom he went to London on Pissarro's advice to study Turner, before going on to paint in Corsica. There he had his introduction to Mediterranean light and color.

A year after his marriage, back in Paris, the student still, Matisse was dropped from the Beaux-Arts when Moreau died and his successor, unsympathetic to Matisse's work, asked him to leave. And to double the blow his father, fed up with a perpetual student for a son, a grown man who no longer had a connection with the acclaimed Beaux-Arts, cut off his allowance. These were hard times.

He had begun to show, had begun to change his style and palette, but there were no sales. In 1901, by now with three children in the household, no sales and no allowance, he suffered severely from bronchitis and was forced to take his entire family back to Bohain to live with his parents. By 1903 things had become even worse. His wife, suffering from anemia, was forced to abandon the little milliner's shop she had opened to help with the family finances. Matisse was about to give up. "If I could, I'd throw painting to the dogs," he wrote his friend Manguin. But he is also the man who said of himself, and meant it: "When my back is against the wall, nothing can stop me."

The turning point came in 1905 with the opening of the *Salon d'Automne*, the annual exhibition to which all of Paris came to see what was being done by the leading and the not-so-leading painters of France. For several years before that, Matisse had begun to open out. He had been experiencing the liberating effect of painting with color for itself, not as a means of description, not as a tool for portraying an object, but for its own inherent emotional expressiveness. He had visited and painted with the neo-Impressionist Paul Signac in St. Tropez and he had painted with Derain at Collioure, a sunwashed fishing village on the Mediterranean near the Spanish border. Here, he went wild with color, not just in the intensity of the hues he used but in their juxtaposition: oranges against blue, red against green, yellow against violet.

Hardly less daring was the work exhibited at the

Salon by a group of young painters who showed alongside him: Derain, Marquet, Manguin, Vlaminck, Rouault among them. Together they created the first great art scandal of the 20th century. Dubbed "Les Fauves" (wild beasts) by the critic Vauxcelles, their celebrity soon spread. The poet Guillaume Apollinaire stopped by and wrote of the Salon where "the great colored cries of the Fauves" were to be heard. And so was observed the arrival of the Wild Beasts.

Leo Stein, Gertrude's brother, came and looked. And looked. And declared Matisse's *Woman with the Hat,* one of the landmark paintings of the 20th century, "the ugliest smear I have ever seen." And, on the last day of the Salon, bought it.

"For years," wrote Barr, "Matisse had suffered the neglect or active hostility with which the French have ordinarily rewarded their greatest painters of the past 100 years only to complain long after the artists have won their uphill battles that wealthy and rapacious Americans have deprived the Louvre of French masterpieces."

American and Russian buyers

The *Salon d'Automne* led Matisse directly to another salon, that of Gertrude Stein at 27 rue de Fleurus on Paris' Left Bank, the focal and vocal point of intellectual and artistic Paris, and in those heady days, therefore, of all the world. Matisse came to see and soon enough people came to see him and his work there, which Gertrude as well as Leo and another brother, Michael, and his wife, Sarah, began to buy regularly.

The percipient Russian collector Sergei Shchukin bought many of Matisse's paintings, including a number of his major works, and soon the Cone sisters of Baltimore, Etta and Claribel, joined the collectors enthusiastically to the extent that the Baltimore Museum of Art today has 42 Matisses bequeathed to it by them, recently reinstalled in special galleries.

Another outstanding collector of art, Dr. Albert Barnes of Merion, Pennsylvania, started to acquire his Matisse paintings in 1913. He later went on to commission one of the great murals of the modern world, *The Dance,* which Matisse came to America to install himself in 1933.

The tide had turned. In 1907 the famed dealer Daniel-Henry Kahnweiler came to Paris and signed up Derain, Vlaminck, Braque and Picasso. But not Matisse, who "was already too expensive for me."

Matisse had become known as the king of the Fauves, but soon enough left Fauvism behind to explore new worlds. He began a series of large figure compositions which are among the monuments of 20th-century painting. He traveled: to Italy, to Morocco, to Russia, to the United States, where a number of his paintings

Cleveland Museum of Art

The road to Villacoublay, 1917, is one of several paintings Matisse did inside his little Renault 9CV.

Private collection

Gladioli, 1928, is a riot of patterns—the floor tiles, marbleized walls, ornate chair and naturalistic flowers.

Private collection

The piano lesson, Henriette and her brothers, 1923. Domestic felicity reigns in this red interior, which recalls similar piano lessons painted during these years but featuring members of Matisse's own family.

were shown at the groundbreaking New York Armory show of 1913. The show then moved to Chicago, where Matisse's *Blue Nude* (p. 83) was rewarded by being burned—fortunately in effigy.

In 1914, as World War I broke out, Matisse reported for service and was rejected. He was 45. He wrote a friend: ". . . Waste no sympathy on the idle conversation of a man who is not at the front. Painters, and I in particular, are not clever at translating their feelings into words—and besides a man not at the front feels rather good for nothing." It was in this mood, having gone through an exhausting period of intense experimentation, dejected by the war and his lack of participation in it, that he made the move to Nice.

The Côte d'Azur is a cosmetic place. It must have looked painted long before the artists got there. The challenge always in such a place of ambient, sparkling natural beauty is to avoid imitating what nature has already achieved and to aspire to another kind of perfection. A surer hand than Man's has already made up the place. The only way for an artist to deal with it is to experience it and then, so to speak, to denaturalize it.

For Matisse it was the feeling of the place to which he responded. "I cannot copy nature in a servile way," he wrote in 1908. "I must interpret nature and submit it to the spirit of the picture. When I have found the relationship of all the tones, the result must be a living harmony of tones, a harmony not unlike that of a musical composition."

Nice engendered these feelings. Looking back, at the end of his life, he said: "I was emerging from long, tiring years of experimentation when I had done my very best, after much internal conflict, to attune my researches to a creation which I wanted to be unprecedented. . . .

"Yes, I needed to have a respite, to let myself go and relax, to forget all worries far from Paris. The *Odalisques* were the abundant fruits at once of a lighthearted nostalgia, of a beautiful, living dream and of something that I experienced almost ecstatically day and night, under the enchantment of that climate."

And this points up the importance of the National

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Gallery show, which has been so sensitively put together by Jack Cowart, the Gallery's curator of 20th-century art, and guest co-curator Dominique Fourcade. Late in life Matisse said:"Look closely at the *Odalisques*. . . . In this atmosphere of languid relaxation, under the torpor of the sun washing over people and objects, there is a great tension brewing, a tension of a specifically pictorial order, a tension that comes from the interplay and interrelationship of elements."

For years, except when he was at his villa in Vence, a town less than 20 miles away, or in Paris, Matisse stayed in a succession of hotels and apartments in Nice. For the most part they were on the sweeping Promenade des Anglais, a long, gracefully curving boulevard along Nice's magnificent bay.

Of the Hôtel Méditerranée et de la Côte d'Azur, a particular favorite of his, he said: "A good old hotel, I must say! And what lovely Italian ceilings! What tiles! They were wrong to pull the building down. I stayed there four years for the pleasure of painting nudes and figures in an old rococo salon. Do you remember the way the light came in through the shutters? It came from below like footlights. Everything was fake, absurd, terrific, delicious. . . ."

In his *Notes of a Painter,* he had written: "What interests me most is neither still life nor landscape but the human figure. It is through it that I best succeed in expressing the nearly religious feeling that I have toward life." And in Nice the figure is what he returned to and painted, making pictures of surpassing beauty.

Two personalities locked in combat

Matisse's personality is enigmatic in that it is difficult to reconcile with his work. There was a good deal of his father in him, if nothing at all of him—other than the discipline which produced it—in his work. Barr puts it this way, pointing out that his life was "full not only of tangible hardships and triumphs but of quiet inner drama. Outwardly disciplined and measured, his personality is actually a complex of powerful tensions and dissatisfactions. For the creator of the happiest canvases of our day is exceptionally afflicted by anxieties. . . ."

Duthuit wrote, "One cannot discount the possibility that there were two personalities in Matisse at odds with one another, often locked in fierce combat: the landowner would snap at the heels of the profligate; the professional and calculating mind would badger and quibble with the visionary; the prosaic painter would try and stifle the poetic artist."

He could not have been an easy man to get along with. "He sometimes struck his friends as a monster of selfishness, indifference and inhumanity," wrote Pierre Schneider in his monumental book on Matisse, an extraordinary examination of the artist. The result of 14 years of work, it runs more than 750 pages, weighs almost nine pounds, contains a magnificent representation of Matisse's work and is filled with insight and passion. Along with Barr, Schneider is indispensable for an understanding of Matisse's work.

Matisse had said that a painter exists only through his paintings. Schneider observes: "The remark should be taken literally: Matisse the man existed only to house and fuel the ruthless painting machine of Matisse the artist."

There were times when Matisse himself might have gone along, at least in part, with that judgment. "I am too involved in what I'm doing," he had said to his old friend Marquet, "I can't tear myself away from it. For me nothing else exists."

But there is another side to the man. There is the side that had him saying to an American journalist in 1913: "Oh, do tell the American people that I am a normal man; that I am a devoted husband and father, that I have three fine children, that I go to the theater, ride horseback, have a comfortable home, a fine garden that I love, flowers, etc., just like any man."

Collection of William S. Paley

Woman with a veil, 1927. Matisse asked a friend: "Don't you find it's rather direct? Rather Manet?"

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National Gallery of Art, Washington

Woman with amphora and pomegranates, 1953. This cut-out celebrates, as always, the earthly paradise.

Later, in Nice, he was to find a life of fewer intrusions where he could be entirely alone with his work. But he also had time for other sides. He regulated his days: up early; violin practice (a serious student, he had a private violin teacher); painting in his room, on the quai, in the gardens of the city or in the nearby hills. In the evenings, to a cafe. He rowed at the Club Nautique, went to the ballet, to concerts, visited friends, drove around the countryside in a tiny Renault. Such were the years in Nice, a pleasantness to be sure, but beautiful pictures were being created all the time.

In 1941 he suffered from a duodenal cancer, followed by two pulmonary embolisms. The nursing nuns in the hospital referred to him as *Le Ressuscité* (the Risen One). He spent 90 days in the hospital and two months with the flu that year. His operation had left him with a prolapsed stomach. He had to wear an iron belt and it was painful for him to remain standing for more than an hour at a time. From 1943 on, he suffered from gallstones and jaundice. Confined to bed for long periods of time, he continued to work. It is out of that period and until his death that the Vence Chapel was conceived, and the final summation of his spirit and sensibility—the cut-outs, which are liquid light, caught.

In old age he said: "From *La Joi de vivre*—I was 35 then—to this cut-out—I'm 82—I have not changed . . . because all that time I have looked for the same things which I have perhaps realized by different means."

Just before his final heart attack, noticing a group of doctors huddled together discussing him, he said: "Please go and tell those gentlemen that, considering they're discussing a patient who isn't, as it happens, ill, they are spending an awful lot of time over it." He died three hours later.

He was always aware of something outside of himself that had a hand in what he created. "My work seemed like a calling," he wrote, ". . . I was driven on by something, I do not know what, by a force which I see today as something alien to my normal life as a man. . . . So I have been no more than a medium, as it were."

You find it somehow perplexing to think of this work-obsessed, grave, dignified, in-drawn man as the creator of some of the most delicately balanced, perfectly nuanced, most harmonious and, above all, most joyous works of art ever created. You cannot quite reconcile in your mind the split image of the work and the man.

But maybe it isn't necessary to try. Matisse, you feel, was not that sure of the answer himself.

A 1944 photograph by friend Henri Cartier-Bresson shows Matisse in his Golden Age, a myth of our time.

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Customers relax over coffee at New Englander, a cozy diner on Railroad Place in Danbury, Connecticut.

By Donald Dale Jackson

The American diner is in decline, yet more chic than ever

Diners are dwindling because they failed to keep up with the times, but don't worry, Hon; now the times are catching up to them

Built in 1952, the eatery combines classic streamliner style of 1930s with more modern picture windows.

It is 6:55 on a gray weekday morning at the New Englander Diner in Danbury, Connecticut, a small steel-and-enamel oasis a block off Main Street. Dino, one of the owners, is simultaneously stirring up an omelet at the grill behind the counter, frying hash browns and eyeing the toaster. He is smiling. Gerry, the morning waitress, glides toward a booth with the coffee she knows two new arrivals require. Four elderly men, all morning regulars, are sharing the fellowship of the counter. "You know it's my birthday today," says the man the others call Sergeant.

"Hey, it's the Sarge's birthday," one of his friends announces. "We need a cake." Gerry moves swiftly along the counter and seizes a toasted corn muffin and a plate without breaking stride. She sticks a paper match in the muffin, lights the match and places the plate before the delighted Sergeant. "Sing fast," she instructs the group, and they join her in an up-tempo "Happy Birthday" while Sarge blows out the match. "Want some of my cake?" he asks.

The American diner, Everyman's eatery, is slowly disappearing. There are perhaps half as many diners today as there were in the 1940s. The survivors, old-timers with their silver exteriors and Formica ceilings, their steamy windows and wisecracking waitresses, diners like the New Englander, are still found primarily on Main Streets and their tributaries in industrial Eastern cities. But they have failed to keep up with the times, it is said. They are not *now*.

What a diner is—and isn't

It is difficult to define a diner with precision. Technically, and only technically, it is a factory-built restaurant transported to its site either intact or in sections, and it has a counter. And that's it. But everyone knows that a diner is much more than that. It's a place of practicality where the hallmarks are good and ample—if not fancy—food, friendly prices and quick service. Diners are unpretentious, comfortable and tolerant places where nobody holds it against you if you don't wear a tie, or if you do. The owner, in all likelihood a Greek, can usually be found in the kitchen or at the grill. And the waitress calls you Hon.

Diners may also be distinguished from other restaurants by what they don't have: reservations, wine lists, candles, a maître d' in a tux, plastic flowers in Perrier bottles and please-wait-to-be-seated signs. There are places with some of these amenities that call themselves diners, to be sure, places that also fit the technical definition of being constructed off-site. These are the Colonial, Mediterranean or contemporary diner-restaurants that have flowered on suburban boulevards in the past 20 years. Diner buffs, a small but passionate band, looked askance at these mutants when they first materialized in the 1960s, but most have now adopted an attitude of benign tolerance.

In the past few years diner aficionados have discerned an even more startling development: diners have become chic, fashionable, marketable as a "concept." Stylish eating places in several cities now feature a diner "look" without diner prices. One restaurateur plans to open a chain of "luxury grills" built to order by an old-line diner manufacturer. The niceties that dinergoers have traditionally done without are included, the entrepreneurs say, because today's customers demand them.

Photographs by Richard Howard

Diners are uniquely American. They are a product of our culture, our energy, our tempo and our style; it was here that they were invented, evolving from wheeled lunch wagons to stainless-steel "streamliners" to today's roadside palazzi, and here alone that they flourished. Their numbers and popularity have always been greatest in the Northeast because that's where the manufacturers were and are; at one time or another as many as 20 companies built diners, but now only four do. The buffs know the great diner towns—Worcester, Syracuse, Providence—and the great diner highways, like Route 22 in northwestern New Jersey.

A case can be made that diners reflect the American character. "They help define us," says David Slovic, a Philadelphia architect who collaborated with diner historian Richard Gutman on the splendid book *American Diner*. "They exemplify many of the best American qualities: free enterprise and entrepreneurship, mobility, our love of gadgets and machines—they were fitted out like a ship with everything in its place—the emphasis on convenience and, most of all, democracy. The diner is everybody's kitchen."

"I like the fact that I can go into a diner and my glasses steam up," says Richard Gutman. "It's like I'm in another world." Trained as an architect, Gutman now produces slide-show presentations on architectural subjects from his home office in West Roxbury, Massachusetts. "There are no pretensions in a diner," he says. "The garbageman sits next to the college president and the chief of police sits next to a longhaired kid."

Worcester Historical Society

Cook attends urn of fancy "diner" used in 1890s to tout horse-drawn lunch wagons sold by Tom Buckley.

Diner owners and employees cultivate a relaxed, personal relationship with their clientele. "They know your son plays football and they know when he scores a touchdown," says Mike Kelker, vice president of the Swingle diner manufacturing firm in Middlesex, New Jersey. "One diner owner I know in South Plainfield plows his customer's driveways free when it snows." Nouveau diner entrepreneur John Carroll jr., who grew up in his family's Medford, Massachusetts, diner, recalls down-on-their-luck customers who cleaned windows in exchange for a meal. One regular plied his favorite waitress with flowers and candy. "I remember her bringing a flower into the kitchen one time and saying 'Cheap bum,' " Carroll says. "Then she screwed her smile on and went back out."

For several years during the diner's glory days, a monthly trade magazine constantly urged owners to accentuate friendliness (but not pushiness) and fast service, then reported the anecdotal fruits of its advice, such as the thief who held up a New Haven diner and later became a steady customer, and the Peekskill, New York, patron who wolfed so many diner meals that he paid his tab monthly like a utilities bill. The journal had its peevish moments, too, which it sometimes expressed in verse: "Of all the people I abhor/ This guy is much the worst/ He dips his spoon into the sugar/ All wet with coffee first."

The diner business has appealed to immigrants. "Diners were a step into the American dream," declares investment banker Douglas Yorke, a longtime buff. "The roadside was a route to business success." Even now, when a new diner-restaurant often represents a $1 million investment, most of the buyers are ambitious Greek-Americans who are willing to work till they drop. "Several of them will get together and buy a diner," Mike Kelker says. "One will be the chef, another the short-order cook, one of the wives will be the cashier. They'll work constantly, take their meals at the diner and sometimes sleep in the basement until they start to pay it off."

Building up character like grime

In an age of cookie-cutter uniformity on the roadside, diners are stubbornly individualistic. Though nominally mass-produced, each diner was in fact a customized original with its own distinct blend of design, colors, equipment and features. Stools, tiling, windows, the sign, the enamel strips outside—almost anything could vary. Time and the owner's personality enhanced the differences until no two were alike. "The character of a diner," Yorke notes inelegantly but fittingly, "built up the way grime does."

Ultimately diners drew the folks because they made the folks feel at home. William Sciglimpaglia, a regu-

All photographs by John Margolies/ESTO

Gleaming wing of Threadgill's, a new restaurant in Austin, Texas, was designed to evoke familiar diner look.

Muggsy's, a pint-size diner in Worcester, Massachusetts, dates back to the 1930s.

Phone complemented diner that served Korean food near military base, tattoo parlor in Georgia.

Adobe Diner in northern New Mexico brews "200-mile coffee." It's strong.

Mickey's has been in St. Paul, Minnesota, since 1939, is on the National Register of Historic Places.

Diner buff Larry Cultrera proudly displays collection in bedroom of his Medford, Massachusetts, home.

Jimmy Detsikas, an owner of the New Englander in Danbury, chats with a pair of customers at counter.

lar at the New Englander, summed it up recently over a second cup of coffee. "At restaurants I feel uncomfortable, self-conscious," he said. "I get the feeling that the waiter is waiting on me just for the tip. One diner I know remodeled and the owner became a, you know, maître d'. They didn't have a counter anymore and when he looked at me I saw dollar signs in his eyes."

It is a few minutes after noon at the New Englander as Linda, the afternoon waitress, delivers a take-out salad to a young man standing near the register. Linda has a detective's cool, noncommittal eyes and a slow smile. "For Frank, right?" she asks. The young man nods. "Looks like Frank's going on a diet," she says. "About time." The young man looks uncertain. Linda's face gets halfway to a smile as she rings up the bill.

Jimmy, the co-owner, presses his hands on the countertop to take the weight off his aching legs as he walks, coming to rest near the grill and in front of two postcards taped to the wall—a clown and a view of Puerto Rico. A man several stools down sneezes. "Calm down," says Jimmy. He gazes in dark-eyed solemnity at two nattily dressed men on their way out. "See you in a few weeks," one calls. "Few weeks?" Jimmy replies. "Who knows what gonna happen in few weeks?"

To call Larry Cultrera a diner buff does not begin to describe his attachment to diners. A 33-year-old electronics technician from Medford, Massachusetts, Larry is several degrees beyond mere buffdom. Maritally unentangled, he spends weekends roving the East in his 1979 Chevrolet van in quest of new gems. He keeps a numbered log of his finds, which at last count had reached a total of 411. He breakfasts daily at one of his favorites and met a girlfriend on a diner stool. He collects diner T-shirts, diner menus, diner album covers, diner models from electric-train sets and diner manufacturers' plates, among other artifacts. The cabinet in his van is a retired diner bun warmer and his bedroom is a diner shrine. When he called an inquiring writer to confirm a diner tour of Boston's northern suburbs, he intoned the name of the first destination in the measured, dramatic syllables of a climber announcing that tomorrow's target was (pause) the *summit* of *Everest*. "Tomorrow," he said, "we'll have breakfast at (pause) the *Capitol Diner* in *Lynn*."

Artfully weaving around traffic circles en route to Lynn, Larry talked of his boyhood diner breakfasts

Connecticut writer Donald Dale Jackson visited countless diners while doing this story and is probably in one of them right now.

Like most dinermen, Detsikas works hard, enjoys his clientele—and dreams of striking it rich some day.

Diner expert Richard Gutman (left) stands outside Natick, Massachusetts, eatery with owner, Fred Casey.

with his father—"They know me in Medford because of my Dad, a great feeling"—and tried to explain his obsession. "It's history, nostalgia, camaraderie—I never met one I didn't like. I can be myself, that's the main thing. I get to the Main Street Diner in Woburn before the owner does most mornings. When he arrives he starts making up the grill and I get the first pot of coffee going. I can date a diner I haven't seen before within half a decade." At the Capitol Diner, a small downtown eatery with chickens in its yard, he ordered French toast and bacon and chatted happily with grillman Bob Fennell, whose family has owned the diner since 1938. Fennell adroitly dodged the waitresses navigating the narrow channel between him and the counter. "Diner choreography!" Larry exclaimed. "They call it the diner shuffle." A waitress dropped a spoon. "Company's coming," Larry said.

Resuming the tour, Larry drove past the site of a once-flourishing diner that went under. "It's becoming a wasteland around here," he said. "Every town used to have two or three diners, now they're mostly gone. I look at the empty space that's left when they move away and I think about how small it is and all the humanity that packed into that little place, all the people and warmth and laughs and all that happened there down the years." Larry popped a cassette into the van's tape deck. "Listen to this," he said eagerly. "It's the 'Abandoned Luncheonette' by Hall and Oates." The lyrics spoke directly to Larry Cultrera: "Time measured by the peeling of paint on the luncheonette wall." * "Is that *unbelievable*!" he cried.

A few minutes later he stopped in front of a surviving jewel, the Salem Diner in Salem. Its immaculate cream-and-blue exterior glistened in the morning sun. The curved windows and slanted lines in the sign suggested the motion of a railroad car. "Sterling Streamliner, 1941," Larry announced. "I ate breakfast there the morning before my Dad died."

The final stop was Larry's regular weekday rendezvous, the Main Street Diner in Woburn. "This was where it started for me," he said cheerily. "I branched out from here. It was built by the Worcester Dining Car Company, 1952." Owner Owen Abdalian brought us coffee. Abdalian said he welcomed the dawning age of gourmet diners. "Everything passes," he said. "Americans want Beef Wellington and roast duck now, not just meat loaf."

It is slack time at the New Englander, just after 2 P.M. A dreary drizzle is falling. Two men sit at the counter, several stools apart, and the subject is a recur-

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rent one at the Danbury diner—hitting the lottery. "I haven't looked at the paper yet," one says. "I may already be a millionaire."

A young man comes in, mounts a stool and begins laboriously studying a form. Linda, the waitress, moves next to him and he looks at her imploringly. "Okay," she says, pointing at the sheet, "there they want to know what your last job was. And here they're asking how far you're willing to travel to work." It's an application for unemployment benefits. The young man, a Greek immigrant still unsteady with English, begins filling in the blanks. "He knows English," Linda explains; "he just doesn't understand forms. So I help him. You do that in a diner."

Diner history, Richard Gutman tells us, began in Providence, Rhode Island, in 1872, when the founding father, a Yankee entrepreneur named Walter Scott, started dispensing homemade five-cent sandwiches and pies and 30-cent chicken plates nightly from a horse-drawn lunch wagon. Scott's inspiration proved so popular that a satisfied customer named Sam Jones copied the idea when he moved from Providence to Worcester in 1884, and expanded it by inviting the customers inside. Worcester was a good diner town even then, and Jones soon built a fleet of wagons fitted with ornamental stained-glass windows.

The lunch wagon's next leap forward was mass production, introduced by a wide-awake Worcester manufacturer named Thomas H. Buckley, who became known as the "Lunch Wagon King." His wheeled "White House Cafés" were marvels of intricate woodwork, mural-covered exteriors and stained-glass depictions of the Presidents. They efficiently deployed kitchen, stools and counter in a cart that was only 16 feet long and seven feet high.

Buckley's wagons were wheeled into combat in the war against demon rum in the 1890s when New York City's Church Temperance Society bought several in a campaign to lure besotted patrons away from saloons offering "free" lunches. But this moralistic interlude was followed by a descent into unsavory repute when scores of decrepit old horse-drawn trolleys, rendered obsolete by electric streetcars, were converted to food wagons. The begrimed ex-trolleys and their seedy clientele "set many a virgin heart a-shudder," *The Diner* magazine reported, and tarnished the nascent diners with a stigma that persisted for decades.

It was Patrick J. (Pop) Tierney, a mercantile genius from New Rochelle, New York, who restored the diner's respectability and transformed diner making into big business. Tierney was the diner industry's great innovator. He built neat, state-of-the-art units so efficiently that before long his plant was completing a diner a day. He sold them on credit and financed the buyers himself, a practice still followed by diner builders. Instead of lunch wagons, Tierney called them "dining cars" and "diners," thus linking them to Americans' love affair with railroads. He is also esteemed by diner chroniclers as "the man who brought the toilet inside." Tierney was a millionaire when he died in 1917; his death, awkwardly enough, was attributed to "acute indigestion" after a diner meal.

And now . . . booths for the ladies

In the 1920s and '30s, diners plunged into the American mainstream. "Booths for ladies" appeared in a bid for the family trade; the ladies didn't care for stools. The wheels that the builders included were often removed or covered as diners settled on permanent sites. Jerry O'Mahony of Bayonne, New Jersey, succeeded Tierney as one of the leading manufacturers. His models, delivered complete with dishes, glasses, cutlery and cookware, went for about $7,000 in the early 1920s; for no extra charge his men analyzed an owner's monthly take and advised him how to increase it. O'Mahony's operatives calculated that the average diner customer occupied his stool for eight minutes and spent 28 cents. Business thrived: by 1937 more than a million people a day were knocking back such diner staples as "angels on horseback" (bacon-wrapped oysters on toast) and "bossy on a board" (roast beef on toast).

Diners reached full throttle just before and after World War II. New materials like stainless steel and Formica gave the eateries a snappy modern look, and the popular "streamliner" style gave them dazzle and dash. Builders began making them in sections in 1941, upping capacity and thus profit. By 1948, 13 manufacturers were producing 250 diners annually at an average price of $36,000, the *Saturday Evening Post* reported, and the average check was 50 cents.

The long downhill slide began in the late 1950s.

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Regulars Bob Erhart and Patti McElroy enjoy a leisurely meal in comfortable New Englander booth.

Fast-food restaurants appeared, displacing diners as the prime purveyors of cheap meals to those in a hurry, and the diners' blue-collar faithfuls began to abandon downtown and their downtown haunts for the suburbs. "Diners didn't keep up with the times," David Slovic says. "The little towns in New Jersey and Pennsylvania wanted a McDonald's as a sign they were making it." Diners had never made serious inroads in the Midwest, West or South, and now it was too late to try; shipping costs were prohibitive.

A dwindling rear guard of builders fought back by switching to larger, brick- and stone-sided "diner-restaurants" in the 1960s and '70s. Diners didn't look like diners anymore, and even the name didn't quite fit; one longtime manufacturer now calls its products "modular restaurants." The cost vaulted upward to its current perch at about $800,000. Diner makers claim that their new-look "dinerants" are serving more people than ever, but the number of diners in operation has dwindled from around 6,700 in 1940 to 2,336 last year. *Sic transit gloria dineri.*

Diners are now making a comeback of sorts, but they have undergone a metamorphosis in the process. New-old diners like the Empire in New York City, the Fog City in San Francisco and the East Coast chain envisioned by John Carroll jr. of Boston are upscale eating places with diner motifs. The trade paper *Restaurant News* gushes that such diners are "opening at fever-pitch pace," filling a niche in the "casual-theme dinner-house segment." The yuppie market beckons. "What's marketable now is the look," Carroll declares: "the romance, the design, the aurora-borealis sheen. Diner owners always thought progress meant moving up to a restaurant. My concept is a fine restaurant in a beautiful diner." An old-time diner owner's concept was meat loaf, fries and rice pudding for $2.65. Richard Gutman, who will cheerfully accept a diner in any incarnation, views the trend with equanimity. "It puts diners on the map and brings in more people," he says. "I want to see the diner business do well."

The rise of gourmet diners has been paralleled by a growing, nostalgia-fueled appreciation for yesterday's stainless-steel sweethearts. Gutman draws as many as a thousand listeners for his lively slide-show lecture on diners. Artist John Baeder's photorealist diner paintings command up to $25,000. Rare diner postcards go for as much as $50.

Diners show up frequently nowadays in movies and on TV. New Jersey diners figure in one of Woody Allen's recent films, *The Purple Rose of Cairo.* The Kitchenette Diner, formerly in Cambridge, Massachusetts, was the setting for a scene in *The Brink's Job,* starring Peter Falk. TV commercials for Bounty paper towels are filmed at Rosie's Diner in Little Ferry, New Jersey. Larry Cultrera was so smitten by Barry Levinson's 1982 movie *Diner,* which was set in Baltimore, that he saw it six times. "This place was great," a youthful character says of the *Diner* diner. "We used to think it would be so cool to be older and hang out there. Now we're older and cooler and we're still hanging out there."

These are all ominous signs: we love diners best when we've lost them. More alarming still, three diners are now listed in the National Register of Historic Places. The most cheering recent development is that mobile sandwich wagons, motorized instead of horse-drawn like Walter Scott's, seem to be increasing in number. Diners may have come full circle.

It is 3:45 at the New Englander. Linda is chalking the dinner specials on the menu board: chopped steak $4.85, roast turkey $4.65, chicken parm $5.25. "See you later, Hon," she calls to a departing customer. Jimmy, the owner, is off his sore legs and relaxing in a booth, spinning a dinerman's dreams.

"I'd do a hundred percent better if I had oval windows and tablecloths. You understand what I'm saying? Have a waiter in a suit, no jukeboxes, soft lights, candles maybe. You know, double the money. I'd wear a suit, maybe tuxedo." He looks grave, as always. "Charge $10.95 for chicken instead of $5.25. Make million dollars." Linda passes by bearing coffee. She rolls her eyes.

With coffee at the ready, waitress Linda Arbitelle waits for customers approaching from Railroad Place.

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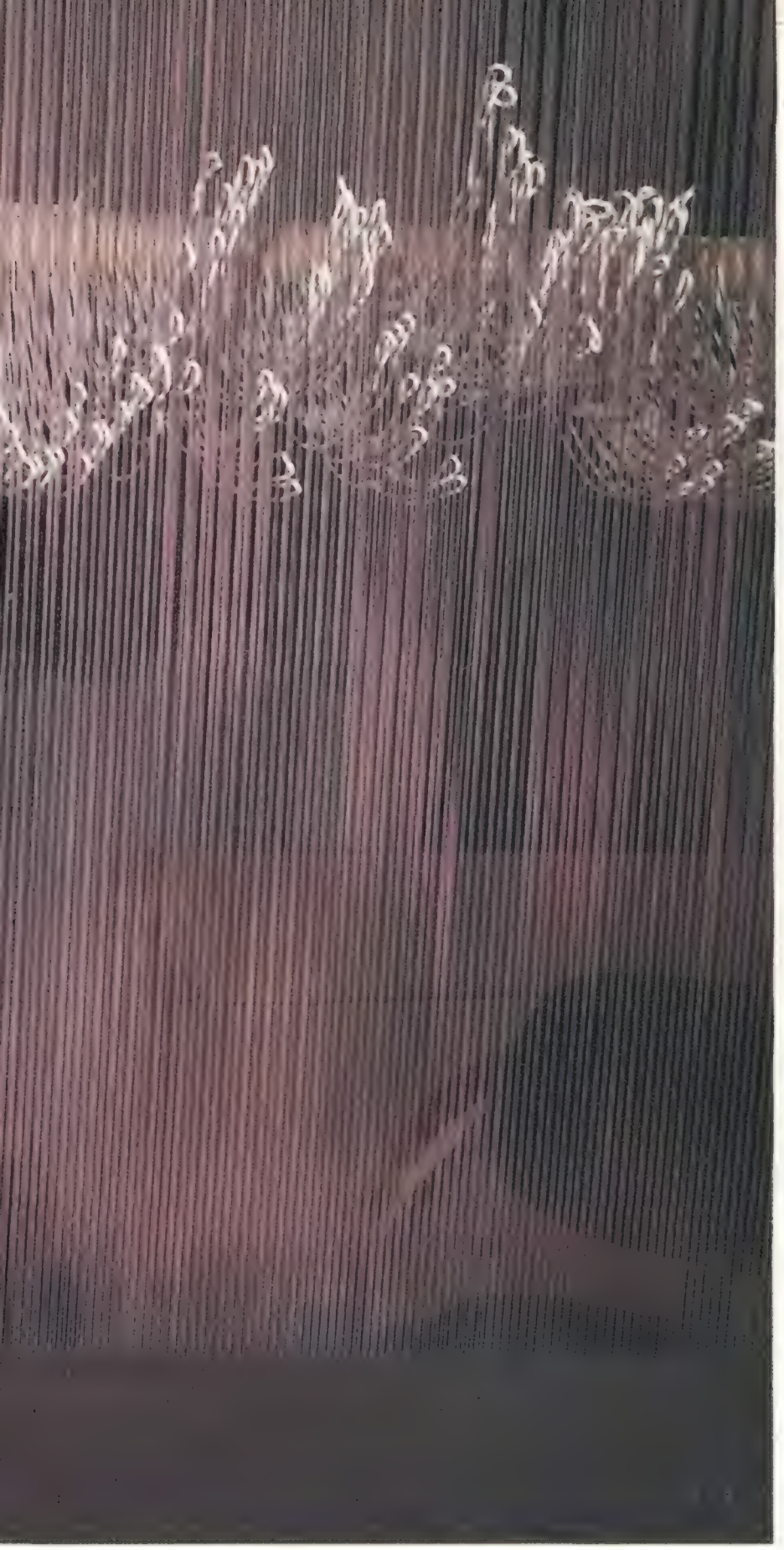
GM Let's get it together...buckle up.

CAVALIER

By Susanna B. Gaertner

The Gobelins: it's renowned for warp and woof

From the lavish age of Louis XIV, this Paris workshop has made tapestries that were crafted to outlast the centuries



Re-creating an ancient carpet from Versailles, worker clips wool to the precise thickness of desired nap.

Making tapestry, weaver maneuvers bobbin, holding threads of woof through vertical strands of warp.

The young woman above looks as if she were playing a harp, and it is true that at this level the art of weaving is not unlike the art of making music. The intricate and precise blending of color, pattern, shape and texture is quite like musical composition, and the results of these textile symphonies are to common handmade cloth what a Bach fugue is to "Mary Had a Little Lamb." For this is weaving as performed and perfected at the Gobelins Tapestry Factory, the oldest and largest tapestry workshop in the world.

The word Gobelins is synonymous with ancient tapestries. But it also refers to a factory very busy today, where modern designs as well as historical reproductions are still made, pretty much without regard to expense, according to methods more than three centuries old. Weaving as it is executed here is a precise and formal art: the ancien régime of weaving. Except for the fact that most Gobelins weavers wear indestructible old blue jeans, the place looks much as it did in 1662 when Colbert organized the Manufacture Royale for Louis XIV where it now stands, between the Jardin des Plantes and the Luxembourg Gardens in Paris' 13th arrondissement. The word Gobelins derives from the name of a family of dyers who settled there in the 15th century.

They chose the site because the river Bièvre (a minor tributary of the Seine long since dried up) was particularly suited for the manufacture of dyes. In those days drainage was, to put it mildly, primitive, and the stream's high content of waste matter—notably urine—was an effective fixative for the dyes.

At the time, of course, tapestries were highly practical as well as ornamental, a kind of insulating wallpaper whose allegorical and narrative subject matter provided crucial warmth as well as uplifting decoration for drafty, stone châteaus.

Visitors who get off at the Gobelins' métro stop will find that little has changed since Colbert's time. The hours are Tuesday through Thursday, from 2 to 3:15, and my guide at least, with elegant mustache and finely

Photographs by Sebastian Hartz

Following replica diagramed under horizontal loom, weaver turns painting behind her into tapestry.

chiseled Gallic features, could have just stepped out of a historical tableau. He is *Chef des ateliers* Gérard Dehais, and as we enter the main hall, like all visitors I am struck by the grandeur of the room, the overwhelming size of the tapestry frames (some 12 feet long by 20 feet high), and the profusion of shapes and colors.

The only sound is the gentle cluck of the spindles as they are maneuvered through the ranks of sturdy thread. At our right stands a frame being used to reproduce an abstract painting by the Greek artist Fassianos. Under the able direction of the *Chef de pièce*, Madame Andrée Boileau, the small (two by two-and-a-half feet) almost insignificant-looking painting is being re-created on the giant scale of the tapestry frame. Madame Boileau, who has been at the Gobelins for 39 of her 57 years, is formally in charge of translating painting to fabric in a series of steps that requires years of apprenticeship to master. She will perform all phases of work on this tapestry, which will take two to three years to complete.

Before any weaving begins, the tapestry frame must be prepared. Vertical warp threads are stretched between giant wooden rollers, which are later cranked to advance the finished cloth. In some of the frames, steel ball bearings inside the bottom roller have replaced the heavy winches once used. Gérard Dehais explains that these ball bearings are the newest addition to the atelier, actually the *only* modernizing item added in the last 100 years. No electric lights are permitted on its premises, because artificial light would subtly alter the weaver's perception of color qualities.

Before the age of Louis XIV, tapestries were woven more or less according to rough sketches prepared by the weavers themselves. But when the Sun King put his official court painter Charles Le Brun in charge of the Gobelins, all that changed. Le Brun had legions of lesser painters working for him. One specialized only in historical scenes, one did landscapes, one flowers, another mythological beasts. Under Le Brun, the weavers slavishly had to follow the models provided by the painters, a technique still used today. An actual painting, known as a maquette, is enlarged either photographically or by hand to the size of the eventual tapestry. Portions of the enlargement are transferred to tracing paper in smaller segments which are placed behind the warp and traced onto it with a pointed penlike wooden tool dipped in ink. The horizontal woof threads add the color and thus complete the exact specifications of the original. Since the paintings are expensive, they are often reproduced as tapestries again and again: between 1946 and 1971, for instance, Matisse's *Polynesia* was woven eight times.

The writer, who free-lances on art and culture, is also on the staff of Architectural Digest.

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What a weaver sees when working on a tapestry: a jumble of spindles, colored thread and wool.

When the Gobelins began production three centuries ago, the number of colors it used stood at a mere 160 shades. By the end of the 18th century, because natural dyes are so unstable, this figure ballooned to include some 30,000 different shades. Fortunately, in 1834 a chemist named Michel-Eugène Chevreul invented something called the chromatic circle, whose 14,420 different colors are exactly those still used today.

Raw wool arrives by the ton at the *teinturerie*, which supplies dyed wool, silk and cotton thread not only to the Gobelins but to the two other branches of the Manufactures Royales as well: the Savonnerie, where carpets are produced; and Beauvais, which turns out upholstery as well as tapestries. First the wool is treated with chemicals—to retard aging and prevent insect infestation—then placed in large vats of water, 50 gallons for two to 11 pounds of wool. There the dye is literally boiled into the wool for an hour. Looking like a sorcerer's apprentice, *Maître teinturier* Liberto Belmonte (right) turns the skeins in their colorant bath.

Once removed from the bubbling cauldrons, the heavy dripping skeins are hung up to dry for 48 hours. Variations in shade are created in the process that are often so slight the untrained eye does not see them. Yet these colors are expected to hold their separate hues for centuries. After drying, therefore, the colors are subjected to the rigors of a fascinating machine known as a "fade-o-meter." It looks like a 1930s version of the LEM, the lunar-landing module, a small body atop spiky legs, about three feet high. Its function is right out of science fiction, too, for the fade-o-meter miraculously "ages" wool 100 years in 56 hours by exposing it to the intense light of carbon-arc lamps. (Almost all tapestry fading occurs during the first century after dyeing.)

Although Belmonte received his training in industry (so that he would know about the latest synthetic dyes) he can also make the natural dyes still used, especially in reproducing old fabrics. These shades have special names derived from vegetable and animal matter. Yellow (*gaude*) and bright orange (*garance*) come from plants, vermilion (*cochenille*) from the dried bodies of female cochineal insects, and a beautiful blue (*indigo*), also from plants—the same blue that tints the faces of the Tuareg of the Sahara, called "blue men" because when they raise their hooded garments to protect against the desert winds, the dye rubs off onto their faces.

As a place for producing priceless carpets, the Savonnerie is badly mistitled. Its name derives from the fact that it was once housed in an ancient factory where *savon* (soap) was made. Soap is fairly simple to cook up. But of all the work done at the Gobelins complex, carpet making is the most difficult, as well as time-consuming. Carpet knotting takes three times as long as weaving. The rule of thumb at the Savonnerie is "one square meter per person per year."

Using vertical frames like their Gobelins counterparts, Savonnerie artisans knot each individual thread around the warp structure. After a line of these knots has been fixed into position, a strand of linen is woven over the row to secure the knots in place and prevent lateral movement when the carpets are walked on. Next, a rough cut of the strands is performed to remove the still dangling spindles. A small, flat piece of wood, exactly the thickness of the desired nap, is then

Master dyer Liberto Belmonte hauls dripping skein of wool from a vat of boiling colorant to check it.

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held against the rough edge. With small scissors, clipping against the wooden block (p. 107), the artisan gives the final cut, or *tonte*, that produces the dense, velvety nap. So even is this hand-done *tonte* that you'd swear it was made by an electric clipper.

Even then the work is not finished. Given that the threads are bunched as they emerge from each knot and have now been slightly twisted by the action of the scissors, a piece of cardboard is held over the final nap and *each individual thread* is straightened with a long pin to ensure the exact precision of the design. At this rate, finishing one square meter per person per year seems positively breakneck.

Some of the carpets are incredibly complicated. Madame Danielle Dezert—that is her hand on page 107—and her colleagues have been working three to a loom for more than five years to produce, or rather reproduce, the 23-by-10-foot carpet for Louis XIV's bedroom at Versailles. "This piece provided an additional challenge because the original was destroyed," explains Madame Dezert, "and, unlike the carpet for the Queen's bedroom, where we could copy the original, this one had to be reconstructed using the Queen's carpet as a model for a specially made maquette." An enlargement of this maquette hangs from clothespins in front of the weavers' bench.

Not surprisingly, it takes at least seven and a half years to become a master weaver. During the first year and a half students decide what they wish to specialize in. At the end of this period they must pass an exam in order to become an apprentice. There are few vacancies. Under Louis XIV, there were some 300 weavers, but only 105 weavers work at all three branches of the Manufactures Royales today. Before 1914 all workers were men. Today, roughly three-quarters are women.

As part of the salaried staff an *apprenti-lissier* must work for at least another two years before he can take the exam for *lissier*, the next raise in grade. After that, for four years, the *lissier* continues to learn every step of the operation, down to the preparation of the delicately delineated color samples, or *échantillons*, which enable the Gobelins to reproduce the exact colors of original paintings. The matching is even more difficult in carpet making because the *échantillons* are prepared by tying threads into little bunches known as *pompons*, whose colors differ from those of the single strands.

A final exam brings the coveted title of *artiste-lissier*. It is demanding and sometimes boring work. Weavers switch with one another from time to time to break the monotony since, even with two or three people working simultaneously on each carpet or tapestry, it can take from two to six years out of their working lives to finish one project.

In compensation, state weavers used to be exempt from all taxation. They lived rent-free in buildings on the premises, and even had special gardens in which to grow their own fruits and vegetables. But today's weavers pay taxes and work the 39-hour French work week, except when the absence of electricity provides

Giraudon/Art Resource

Louis XIV's bedroom at Versailles was decorated with tapestry after Le Brun's *The Triumph of Alexander.*

them with a unique sort of flextime created by especially dark days or foggy weather. Two-thirds of the Gobelins' weavers still live on the premises, but now pay a nominal rent.

Tapestries and carpets were once royal commissions. Now, officially at least, all are works paid for by the state and produced for use in official buildings: ministries, schools, city and town halls, and French foreign embassies. There is, of course, the occasional exception, such as the Chagall tapestries done for Israel's parliament building.

The absence of commercial considerations is important because it has always been crucial in maintaining the Gobelins' legendary standards of excellence. Even today, if a painter feels that his work is not being followed closely enough, whole portions of a tapestry —produced at the rate of 10 to 15 square meters a year—may be unraveled to conform to his dictates.

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Article and photographs by Michael Parfit

A new ship tests the rigor of winter in the Antarctic

Biologists fill in the life cycles of krill, birds, fish and seals—and show that year-round marine science is possible at the bottom of the world

Todd Roberts surfaces through the slush between cakes of ice. He discovered comb jellies feeding on krill.

The big red ship turned into the full force of the Antarctic winter. It was like walking into a fist. Books and charts flew and crashed. The ship heaved up and down, and buried its prow in a vast gray wave. The wind took the shards of water and threw them, at 65 knots, straight at the bridge. The flying water caught the shine of the searchlights and flung it against the windows, flooding the pilothouse with noise and light.

The water drained away in foam. But on masts, superstructure, winches, bitts, rails and all unheated windows some remained, turned to crystal by the cold, adding another layer to the ship's burden of ice.

"Out in the West Texas town of El Paso," Captain Ulrich Mueller sang softly in his German-Canadian accent, "I fell in love with a Mexican girl. . . ." *

The calm voice of Langdon Quetin, the chief scientist, came over the intercom from the stern. "We're taking a phytoplankton sample," he said as he prepared to lower a bottle into the seas that raged beside the ship.

Neither he nor the captain would let winter prevail.

The research vessel *Polar Duke* was south of Low Island, Antarctica, doing two knots south-southwest. I knew the place and the heading, and the remarkable fact that it was a southern August, which equaled—or surpassed—a northern February. I also knew that we were at 63 degrees 23 minutes south, 61 degrees 41 minuates west, 25.7 nautical miles from shelter. But I had no idea what day of the week it was and was hazy on the hour.

In a gale near Low Island, the *Polar Duke* works its way south through heavy seas and 65-knot winds.

Time and dates were never important on this journey, a winter voyage across the Antarctic Circle. The degrees and minutes written on the gray screen of the satellite navigation system, not the clock, would record the success or failure of everyone's mission: to take the detailed and intricate observation of marine science south into the virtually unknown winter of Antarctica.

Scientists have spent winters in Antarctica since 1898, when the ship *Belgica* was stuck in the ice for a year, but most have been restricted to icebound bases. This was one of the first times ever that a research vessel had intentionally steamed into the sea ice in this daunting season.

"The scientific merit of this trip is primarily the season," said Donald Siniff, a noted mammalogist from the University of Minnesota who had sent three scientists on the trip to study seals. "It is also the opportunity to work with other teams, which allows us to get an ecosystem-peek at things." For the National Science Foundation's Division of Polar Programs, which had recently chartered the 219-foot *Polar Duke* to replace the small, aging research vessel *Hero* (SMITHSONIAN, November 1984), it was a chance to see just how capable its new ship really was.

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A new ship tests Antarctic winter

Biologists prepare to dissect a seal they have shot on an ice floe. Organs will be brought back to ship.

The ship demonstrated its toughness in the storm off Low Island. It took all night to manage those 25 nautical miles, but in the low morning sunlight of the following day the ship rode easily in the shelter of Brabant Island, and the mountains of the Antarctic Peninsula rose pink against the eggshell sky. It was as if we had penetrated the barrier of the storm that Antarctica's winter raised against the invader, and had come out the other side into a delicate loveliness not meant for mortal human beings. There was no hard color in the world, and even the bold red ship was pale with ice. So crew and scientists spent the whole sunny day working happily, pounding ice off into the sea, shedding the ship's white chrysalis.

A few days later, at 65 degrees 6 minutes south, beneath the snow-seamed cliffs of Mount Scott, the *Polar Duke* moved into water covered with small ice cakes, each the size of a patio, and its wake through the whiteness turned golden brown. Steve Kottmeier of the University of Southern California, a tall, cheerful man, took one look at the telltale wake and came up to the bridge with a grin. "We found the beef," he said. "So to speak."

The gold in the wake was turned-over ice, discolored by the growth of microorganisms, mostly algae. This microbial community, dominated by algae called diatoms, spreads everywhere beneath the ice. Unlike other Antarctic sea creatures, diatoms make their own food through photosynthesis, gathering light energy and nutrients from the sea. "They're the micrograss of the sea," Kottmeier said; they are the first link in the Antarctic food chain.

The ship came to a halt in a strip of open water and Kottmeier and his team of divers, Richard Moe and Todd Roberts, climbed into a Zodiac and motored out into the ice.

Under the sea ice: improbable clouds

Away from the ship's reassuring rumble, Antarctica was quiet. The ice cakes had been bashed together by storms; deep slush filled the space between them. "A giant Slurpee," Kottmeier said. A swell ran sluggishly through this mass and whispered in the slush.

A frog rose in the Slurpee. It was a big, rubber-masked head: Dick Moe. Moe is a quiet man, given to occasional low-key bursts of eloquence. Now, after he and Roberts climbed into the Zodiac, he described the view below. The bottoms of what looked like flat ice cakes on the surface were humped and jagged beneath. They were made of ice chunks jammed together by wind and waves. "It's like a low overcast with improbable clouds," he said. "The ctenophores were all out, combing their tresses."

Ctenophores are small jellyfishlike animals with

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Diving under cakes of sea ice, Richard Moe samples larval krill, one-twelfth-inch long, in a small net.

Steve Kottmeier uses an auger to take a six-foot core of sea ice. Algae were found all the way down.

long tentacles, with which they catch things to eat. Their presence here was significant. They were eating young krill and the krill were eating diatoms. Even in this time of winter, at the very beginning of the season of light, the food chain was evident.

There had been a moment of excitement the day before when the ice-algae team found krill in the ice. They had drilled out a core in the ice and when they pulled the frozen plug from the hole—behold!—there was a little krill on the side of the core. The divers had collected more samples of bottom ice and there were more larval krill. They came back with a jarful, slivers of faintly orange life with tiny black eyes.

Everything that came up from this cold sea was a gift of winter. Unwrapping it was as much an adventure as being here at all. So whenever anything happened aboard, a group would gather to watch. In the group this time was Langdon Quetin, one of the world's few authorities on krill, who was aware that of the many mysteries krill present to human beings, their larval behavior is one of the least known. He and several others now gathered around the little jar. How were they found? What were they doing?

Dick Moe produced a Jacques Cousteau accent: "We have found ze nursery of ze krill."

Michael Parfit reported from Antarctica in the October and November 1984 issues of SMITHSONIAN. *His book,* South Light, *was published last year.*

I stood beside Quetin, hoping as always against the very nature of scientific research for something utterly dramatic. "Major breakthrough?" I asked.

"No," Moe said, gesturing at Quetin. "Zis is Major Langdon."

It was not, in fact, a breakthrough, Quetin said later. It was, like most research, simply another bit of the fascinating story of the relationship between ice, diatoms and krill that makes this frigid ocean so surprisingly productive. Quetin himself was putting together other pieces of that story.

Krill could be called the rice or wheat of the Antarctic ecosystem: they are a staple of almost every other creature's diet. They are also the most important Antarctic resource to the rest of the world. Krill school together in great swarms that fishing boats can mow like combines—if they can find them. Quetin was here to extend the ongoing study directed by him and Robin Ross, his partner and wife, into this unknown time of year. Their focus was on metabolism: what and when krill eat and how they turn food to energy.

Quetin wasn't sure he would find any krill at all. A British ship that had steamed close to the northern tip of the Antarctic Peninsula during a previous winter had caught fewer than two-dozen krill. For even his simplest experiments, Quetin needed hundreds.

Early in the trip every little fuzzy spot on the sonar that might be krill was examined with care. Once one of the researchers even penciled a school in on the

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IT'S NOT JUST A TRUCK ANYMORE.

paper just to remember what one looked like. "The Abundant Illusion," Quetin muttered once, trying out a title for a paper. Then, at last, east of the Christiania Islands and west of a rock called Farewell, at 63 degrees 13 minutes south, the smudge on the sonar was large enough to try.

As the net was raised out of a rowdy little sea, a crowd again gathered aft: fish people, seal people, bird people, sailors, the cook and Captain Mueller. They stood against a wall out of the wind with their cameras, like a press gallery waiting for the President. The little net came up and Quetin grabbed the round plastic bottom end and poured it gently into a tub. There was a splash of empty water and then, at last, an orange cascade spilled into the bucket. A big grin came out under the captain's mustache. He raised a thumb and the krill team went to work.

What they did was not, so to speak, romantic. The incoming krill were gently rinsed in clean ocean water, then small groups were placed, alive, in 20 jars of water. Each group was then removed from its jar at hourly intervals and whatever fecal material the krill had left in the jars was removed and analyzed. Margaret Amsler, who works so frequently in the Antarctic that she's practically a native, sat for hours beside the jars, siphoning out tiny fecal pellets. The other two members of the krill team, Brant Allen and Pilar Heredia, assisted her and also spent equally-long hours with calipers, measuring each animal. It was not unusual for the krill team to work the night through.

Krill have been kept alive for months in tanks without food; they molted and diminished in size, consuming themselves. The transparent bellies of most of the animals we caught were clear and empty as glass, and the water in which they swam was almost barren. A major objective of the trip had been to see whether krill spend the winter in the sea as they do in a tank—fasting—and now it seemed that perhaps the krill were indeed shrinking through the winter, eating nothing.

That didn't mean that nothing was eating them.

Bringing up a nightmare

Fishing, which usually happened at night, was also attended by scientists from other projects, because bringing up the net from that mysterious Antarctic bottom never ceased to be exciting. "Nobody knows what's there at this time of year," said Gerardo Chin-Leo before the trip's first trawl. Chin-Leo was working for H. William Detrich III of the University of Mississippi Medical Center. "Could be tennis shoes for all we know."

The net never brought up a shoe, but one night it caught a nightmare: at 12:30 A.M. the net came up from the depths bearing an enormous jellyfish. Its

Inside the gaping maw of an ice fish, held by John Konecki, is the sparkle of Antarctic gold: krill.

Heavy gloves are a must for handling this glass worm; its silica spikes can inflict painful wounds in skin.

Todd Roberts

A bottom-trawl catch includes brittle and bat stars, sponges, corals, worms and macroalgae (dark ribbons).

An enormous jellyfish, whose tentacles stretch off into the darkness, appeared in one late-night trawl.

body (below) was ten gallons of glop, its tentacles were 50 feet long and it looked like the genesis of a terrible dream, a creature of grasping slime.

Little stones, algae, sea urchins, worms and young fish were the normal catch (left). During the whole voyage the four fishermen dissected and froze all or parts of more than 2,500 fish, most of them juveniles. That in itself was a surprise; the favored fishing grounds had yielded mostly adults in the summer.

The fish biologists' long-term work will reveal feeding patterns; precise ages calculated by study of otoliths, the tiny bones of the ear; the way certain proteins assemble in fish at cold temperatures (which may have ramifications in the field of medicine); and, particularly, fish reproduction and life-history strategies.

"Winter," said Kevin Hill, who was working for Richard Radtke of the University of Hawaii, "that's the time when the spawning is really going on. Nobody's ever had a chance to look at these larval fish at this time of year before."

One objective was to find out if the fish were eating krill in the winter; some northern rockfish eat very little during the cold season. But from the larval fish up to the adults, stomachs were often stuffed with krill cocktail. "Clearly," said John Konecki of the University of Washington, "the krill must be around here, because these guys are chowing down."

Fish eggs discovered in a glass sponge

It was Konecki who earlier had provided one of those rare moments of scientific drama for which I hungered. The time was after midnight; we were off Hugo Island, 65 degrees 2 minutes south. The barometer was falling like a brick. "She's going to blow again," said the captain, cheerfully. On the stern, the fishermen and crew heaved the heavy end of the net aboard and dumped it out. Rocks, algae and little fish hit the deck. In the pile were several hard, siliceous rosselid sponges, commonly called glass sponges, which looked like thick, fuzzy flower vases. Konecki picked one up casually and looked inside it. He stood up. He shouted, "It's full of *eggs*!"

The sponge was the refuge in which a fish had deposited its nest of eggs. Konecki commandeered the fish lab's microscope and poured a few of the eggs into a dish. He sat there sketching what he saw for the next hour and a half. "He's like a new father," one of his colleagues said, watching. No wonder; the young fish would offer both him and Hill the chance to test important hypotheses about birth and age.

The timing of the catch was perfect: the warmth of the lab brought the eggs to the point of hatching in only a few minutes, and under Konecki's rapt gaze the new little fishes began to kick free of their silver globes.

From the ship's rail, a biologist shoots a seal, which will then be winched aboard for dissection.

The *Polar Duke* lies moored at Palmer Station, a U.S. outpost, the first vessel to arrive there in winter.

"You don't even get to do this at Friday Harbor," he said, referring to the University of Washington's noted marine laboratory. "See a live larval fish that's just hatched." At last he rose from the scope and grinned. "I've got to stop being excited about these things," he said, "and be scientific."

The least scientific pursuit on the ship was weather prediction. The captain and the barometer were seldom right about what was coming. The day he thought it would blow, the barometer hit bottom at 956 millibars of mercury, yet the air and sea remained utterly placid. Nor did temperatures ever plummet to the depths we had expected. Usually it was about 20 degrees F and on the most bitter night it only got down to zero.

On another night as the *Polar Duke* moved slowly through a mixture of slush and ice, the wind came again, humming deeply in the antennas and showing 55 miles per hour on the anemometer. But there were no waves, no crashing tumult of spray and spume. Instead, under its heavy skin of ice, the sea just heaved violently, becoming a jumbled, living terrain of white hills and chasms. Without the fluster of water at the surface, the revealed swells ran through the ice in naked ranks, raw energy racing to expend itself on the shore. In the night, with this confused but curiously smooth surface glistening in the searchlights from the bridge, it seemed that the *Polar Duke* moved heavily beneath the weight of an alien atmosphere through a liquid-ammonia sea.

In rough weather or calm, as long as it was daylight the bird team worked steadily. The two biologists, Pamela Pietz of the University of Minnesota and Craig Strong of the Point Reyes Bird Observatory in California, worked all the way across the Drake Passage from South America, sometimes in spite of seasickness when everyone else so afflicted was bunk-ridden. They recorded detailed observations, for half an hour at a time, once each hour, of every bird that came within a 300-meter quadrant off the ship's bow. This work continued whenever the *Polar Duke* traveled and will contribute to the worldwide accumulation of data on southern-ocean bird distribution and its relationship to water depth, temperature and ice cover.

Winter life for the gulls, petrels, terns, fulmars and shags of the Antarctic turned out to be not much better than it was for the adult krill. (Penguins, the Antarctic's signature bird, were surprisingly elusive; Pietz never got close to one, and had to settle for a few distant observations.) In stomach after stomach of the birds they collected, Pietz and Strong found nothing. Feeding success appeared to vary widely, however; a few birds had slimmed down to bone and feathers, and others were still plump, but most had just enough fat on them to indicate, Pietz said later, that "they weren't in trouble in terms of finding food." The birds' gizzards usually yielded a few squid beaks, krill eyes or fish otoliths from earlier meals, so life was not a famine.

"How long would one krill last a leopard seal?" Langdon Quetin wondered aloud in the galley one day. After calculation, he and members of the seal team guessed the energy in a single krill would power the big seal for about ten seconds. Yet the leopard seal, the notorious predator of the south, has teeth that look designed as much to filter krill from seawater as to gnaw flesh. Siniff and others had hypothesized that

This badly injured crabeater seal was one of a group trapped in an inlet and attacked by leopard seals.

leopard seals, which appear to favor the meat of penguins and other seals in the summer, might make it through the winter on krill. To answer this and other questions, Ward Testa, leader of the seal group, and his team collected seals (opposite).

It was intense work. Within 20 minutes after a seal had been shot, it had been winched aboard and measured, its blood sampled, its jaws readied for boiling to remove the teeth, its stomach and reproductive organs taken up to the seal lab, its liver and kidneys put in the freezer and its carcass thrown over the side.

The first 36 crabeaters had empty stomachs. Lloyd Lowry, an Alaska state biologist on the seal team, said it was the most uniform stomach sample he had ever seen. The leopard seals, too, weren't feeding well. In all, the sealers took 56 crabeater, 29 leopard and two Weddell seals, and found few full stomachs. But the two leopard seals that had been eating were full of fish and krill, supporting the idea that winter changed their diet.

Future analysis of the tissue samples and pregnancy rates will tell biologists something about crabeaters' reproductive age, which may be getting older. Seals appeared to be giving birth at progressively younger ages from 1945 to 1968, Siniff and others have written. If that trend is reversed, is it because the abundance of krill left by the killing of thousands of whales has leveled off and the ecosystem has stabilized? Will human krill harvesting disrupt the system once again?

No one liked the killing that had to be done, particularly Ward Testa, who usually spends his time observing live Weddell seals. "When you go out and work with them all the time," he said, "you just kind of fall in love with them. I did not look forward to this assignment."

But he shot and shot, knowing that the greater the sample, the greater would be the value of each individual seal as it contributed to the body of knowledge, and knowing too, as Siniff said, that dissecting animals "is the only way to obtain information that is essential if we're ever going to talk about conservation."

The days of collecting seals were beautiful but sad. At 65 degrees south the *Polar Duke*, embraced by silver light, slipped through calm seas in a succession of gauzy days, among bits of glaciers lying pale blue in white ice cake, with the mountains soft and weightless on a pink horizon. Behind it on the whiteness, the big ship left a long thin trail of blood.

This was not a kind world, this Antarctic winter, with or without the guns of the *Polar Duke*. At Palmer Station, the year-round U.S. laboratory on the Antarctic Peninsula, there was also blood on the snow. On a couple of dozen acres of fast ice beneath the beautiful blue cliffs of the Marr Ice Piedmont, about 350 small crabeater seals had gathered. A third of them were wounded, and several of the Palmer crew saw leopard seals patrolling the mouth of the inlet in which the crabeaters sought refuge.

When the *Polar Duke* arrived the seal crew disembarked and wandered for several hours among the crabeaters, counting injuries. The seals moaned and growled, the glacier cracked and a surge rattled loose ice in the inlet. It was a gruesome place; a wrecking yard of life. The seals were raked and hacked by teeth marks, and the ice was splotched with blood. Hungry sheathbills—chickenlike birds that live by scavenging—

pecked at the wounds and fought over patches of red.

Lloyd Lowry stood looking at one injured seal a long time. He is a matter-of-fact sort of person; he had cut up many a seal for science with no qualms. But this widespread evidence of the ferocity of the battle for survival that went on beneath the snowy loveliness impressed him. "It was a real piece of life out there," he said later. The young crabeater's right flipper was chewed to rags and there was a big scabby wound on its side (p.125). "If I were you," Lowry said to the seal quietly, "I'd die."

Leaving Palmer, the *Polar Duke* sought to establish its own winter range, the habitat in which it might hope to work regularly in the future. This trip had revealed as many questions as answers, so if the data gathered in this month of work was to become part of a comprehensive knowledge of the Antarctic winter, it would have to be supplemented. This could not be an isolated event; it must be a beginning. Steering a southerly course, the captain sang along with the song on the intercom: "No retreat, baby, no surrender."

At 65 degrees 5 minutes south, the ship passed near Faraday, the British station, and a distant figure clad in red appeared on skis and climbed a mile-long glacier ridge to stand in the cold and watch as we slowly faded away into snowfall. At 66 degrees 10 minutes south, we saw open water for the last time. Pushing through ice, the ship slowed, from eight knots to four, from four to two. All movement of the sea's swell vanished in the ice, but still the ship pushed south. Seals

Across the frigid water, sunlight brightens a distant iceberg and the mountains of the Antarctic Peninsula.

appeared on floes less and less often and we only occasionally saw a penguin. At last the ice seemed barren but for the rich brown soup of the diatoms in the wake. Then, on a quiet evening, when almost all the scientists were in the ship's lounge watching *The Sting* on the VCR, the captain wrote in the log: "0345 GMT. V/L crossed Antarctic Circle." The ship had penetrated the boundary of the winter night and surpassed its goal. Yet we made a subdued group, for all this achievement; somehow wearied, we tried to have a party that night and wound up watching another movie instead.

The *Polar Duke* pushed on south, drawn partly by the most northerly known colony of Emperor penguins, which is on a cluster of islands called the Dions. To Pamela Pietz, the chance to study the Emperors in winter was an opportunity of a lifetime, as exciting as the eggs John Konecki found, a lot more exciting than the jellyfish. Emperors raise their chicks in winter; seeing them at that task would be a fitting cap on a research journey that had found the Antarctic winter undaunting to new life.

But it was not to be. Twenty-five nautical miles north of the Dions the ice thickened, progress slowed to one knot and a range of icebergs appeared ahead on the radar screen.

"That's it," the captain said. The *Polar Duke* slowly turned around, to go back to two weeks' more research and to the long journey home. At 67 degrees 45.75 minutes south, winter had won.

The voyage was surprisingly calm and sunny, almost a reward for a vessel that braved the storms and ice.

WHITTLE

By Robert A. Hutchison

An 18-day run from England to Iraq is not for the timid

Increasingly today it is trucks that carry cargo between Europe and the Middle East. 'Driving the line' may be the toughest route of them all

"Baghdad! Where zat?"

"Iraq. It's that green country," Leon Ashworth said, pointing to the wall map behind his desk.

Leon, the operations manager for Whittle International in Preston, northwest of Manchester, was talking to Graham Davies, the owner of a 290-horsepower Scania truck. Graham, a 49-year-old grandfather, drives under contract for Whittle, one of the largest long-haul firms in Britain. Their specialty is running to the Balkans, North Africa and the Middle East.

"But 'ow do I get there?" Graham wanted to know. Until then, he and his 15-ton "Old Girl" had made 35 trips to Greece and Bulgaria for Whittle, carrying all manner of merchandise from chemical fertilizer to spare parts.

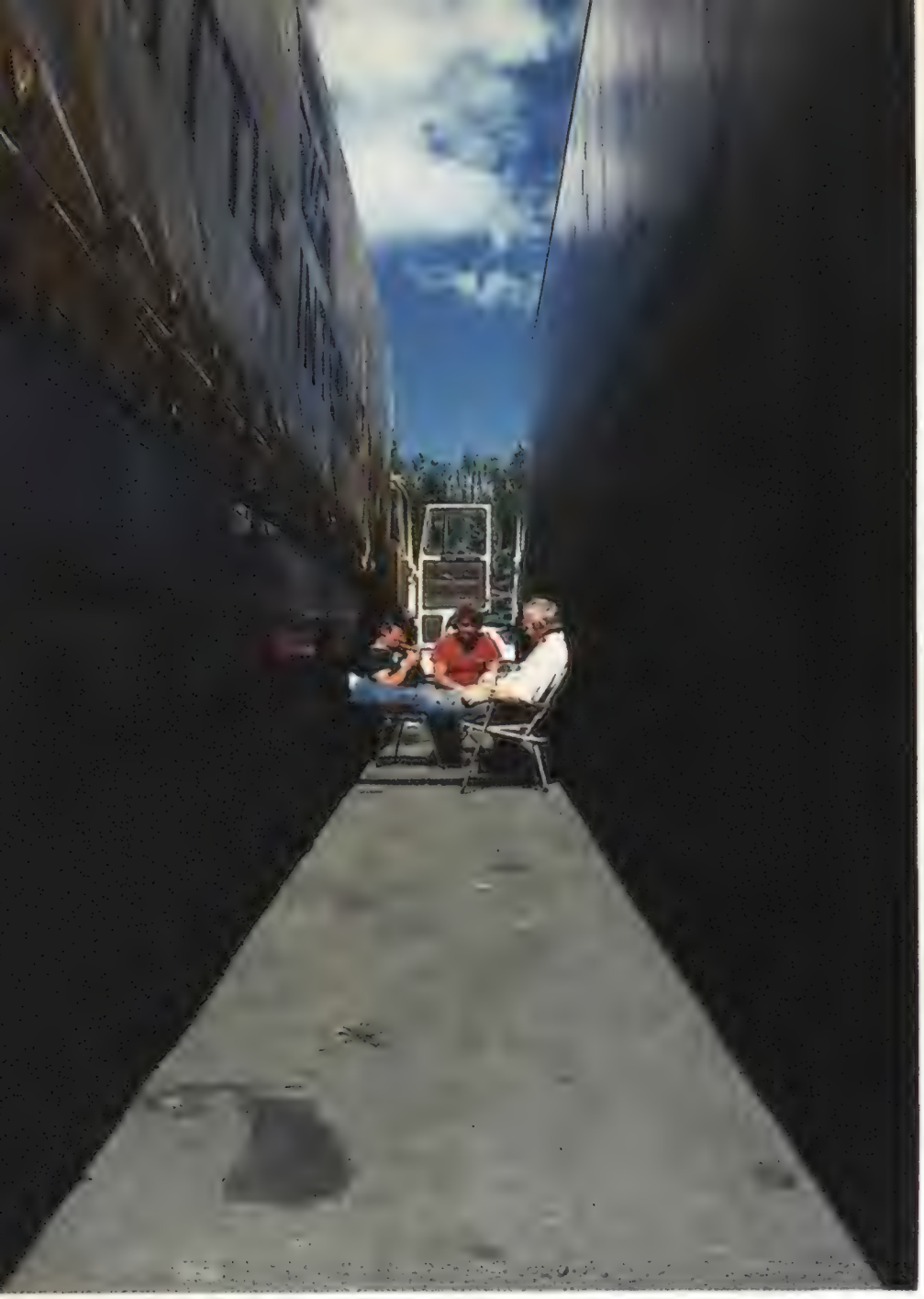
"Out the gates, turn right, then down to the bottom of the road," Leon replied with feigned impatience.

Graham had just been told he was driving me and a load of construction material, including a banquet kitchen, some 3,800 miles to the capital of Iraq. The journey would take us through nine countries and require, there and back, almost five weeks.

For truckers, the run to the Middle East is one of the most dangerous in the world. The men who "drive the line" must have nerves of steel. They have to contend

Truckers roll through construction dust in eastern Turkey. The author rode in the yellow Whittle Scania.

Photographs by Kay Chernush



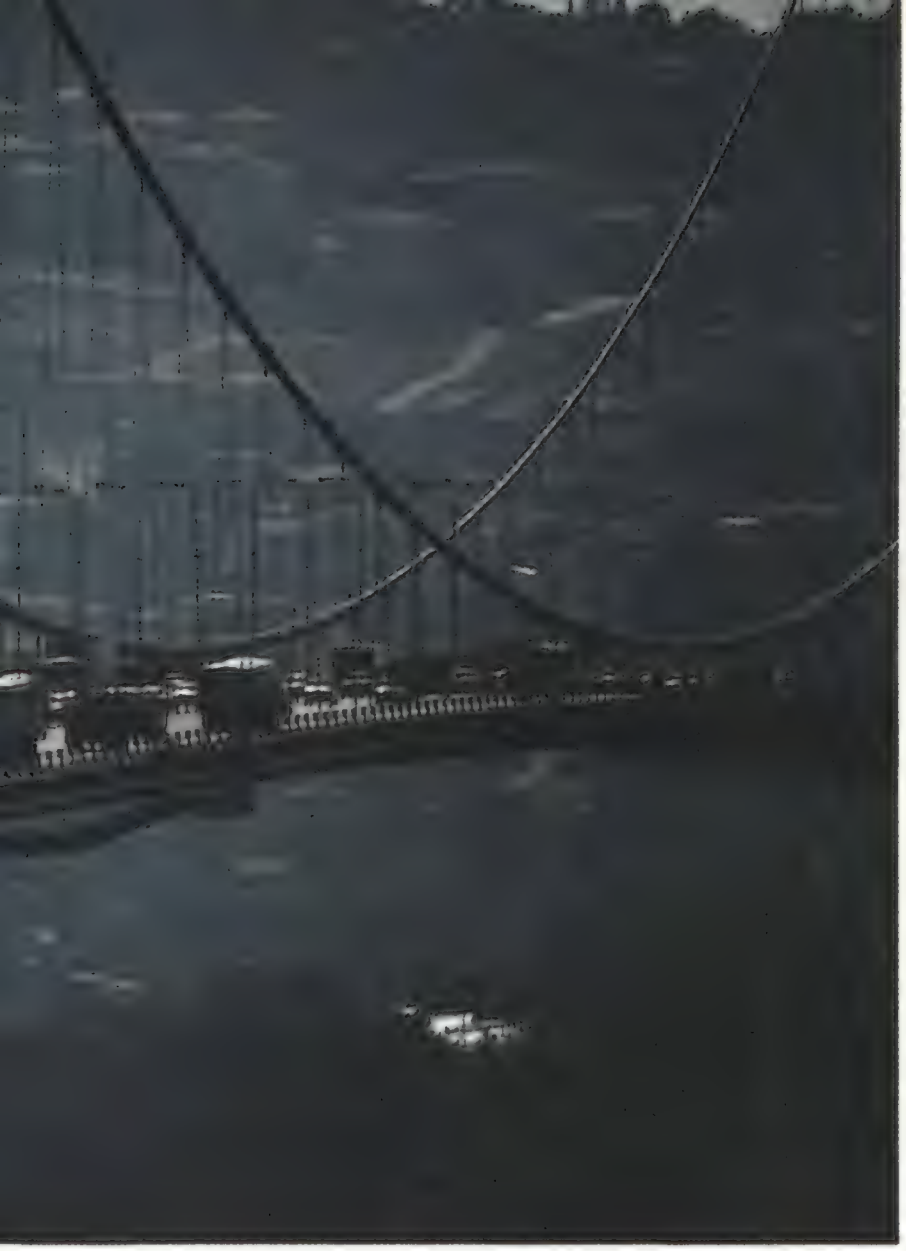
Graham Davies (left), Tony Meddings (right) and third driver chat in their private "patio" in Belgrade.

The author's truck took nearly five weeks to drive 3,800 miles from England to Baghdad—and then back.

with kamikaze Turkish bus and "tonka" drivers, bent police, capricious customs officials, shifting war zones, bandits, treacherous roads and extreme weather conditions. These wheeled caravans carry every kind of cargo from chilled meat to oil-drilling bits. Shippers often favor them over air transport because truck freight is less expensive and nearly as fast, and over sea transport because they are months faster. But the biggest advantage comes in the handling. With no transshipping necessary, either to or from the airport or docks, the risk of damage or theft is minimal. Packing costs can therefore be reduced and customs clearance is quicker as the driver sees that the cargo gets through so that he can get back on the road again. For some destinations, trucks are the only way to go: neither air nor sea transport is available.

Graham's Old Girl includes a 40-foot canvas-covered trailer. It has three axles at the back, each with four wheels, to support a maximum payload of 25 tons. This type of trailer is known as a "tilt." Graham's tilt had been partly loaded that morning in Manchester and now was in the Whittle yard being "topped up."

While Graham received his final instructions and $2,800 in "running money," I went outside to watch the topping up: inside the tilt were six giant crates containing the kitchen equipment. They were labeled "Project 314, Ministry of Planning, Baghdad." An-



The Whittle Scania follows a Dutch truck around a Roman aqueduct in the Macedonian city of Kavalla.

Traffic crowds the Bosporus Bridge, whose completion in 1973 opened the Middle East and Asia to trucks.

other dozen pallets remained to be loaded, including two with sacks of gypsum and one with canisters of corrosive acid. Altogether this amounted to 11.3 tons of cargo, which gave the Old Girl a gross weight of 26.3 tons, well under the 40-ton Continental road limit.

On the morning we left, a Sunday, it had started to rain. In the kitchen, Graham's wife Madeleine made us tea. Graham was nervous. He fidgeted with his cigarettes until the moment to leave could no longer be deferred. The farther south we drove the more he relaxed. Old Girl was running smoothly. By midday the rain stopped; at 2 P.M. we were on the Dover docks.

We cleared customs, getting our TIR carnet stamped, a lead seal placed on the back of the tilt, and a T-Form which permitted us to transit the Common Market with 800 liters of extra diesel sealed in a "belly" tank. Outside the Common Market, a TIR carnet is needed to carry goods. TIR stands for *Transport International Routier*, and a TIR convention permits sealed cargoes to travel from one country to another. Each cargo is covered by a customs bond, guaranteeing delivery of the goods to the specified country without the seals being broken.

We crossed the Channel on the 7 P.M. ferry to Zeebrugge. It was a freighter that took only trucks—about 80 in all. On board we were given a meal and a bunk for the five-hour crossing. Twenty minutes after docking we were through Belgian customs, heading for the West German frontier. We drove all night, stopping at Cologne in the morning to pick up a Czech visa, and then on to Frankfurt, pulling off the autobahn at a service area. Common Market regulations prohibit more than eight hours of driving a day. Also, a one-hour break is required after each four-hour driving spell. The speed limit for heavy vehicles throughout the Common Market is 100 kmph (62.5 mph). To ensure that drivers respect the law, trucks must be equipped with tachographs, circular disks which fit under the speedometer. They record the vehicle's speed and running time. Tacho disks are referred to as "motorway Frisbees" or "spies-in-the-cab"; drivers detest them.

We went "Czech-Hungary," the shortest of the eastern routes, avoiding Austria because of heavy road and transit taxes amounting to more than $200. Instead of continuing through Romania and Bulgaria, we crossed the Danube south of Budapest into Yugoslavia, electing to take the "touristic route" through "Yugo-Greece" because Graham knew those roads better. We arrived on the outskirts of Belgrade on Thursday evening, our fifth day out, and parked for the night beside the National Hotel, where English fare—mixed grill or steak and chips—is served. Three other Brits were at the National when we arrived, sitting at a table and telling "war" stories. As we ordered another round of

R.W.G. (Jammie) James of Wales is famous with fellow British truckers for his impersonations of Popeye.

Graham Davies rousts out after a nap in the bunk of his tractor. Hours have turned him into a tea addict.

beer, a muscular figure with thinning hair appeared in the doorway, hopping mad. He had almost rammed a Yugoslav car running without lights. "Brakes jammed and I had a spot of trouble unfreezing them, didn't I," he fumed.

That was our introduction to Tony Meddings, one of "Charlie's Chocolate Cowboys." He drove a Volvo F12 with a refrigerator trailer for A.E. Prior Ltd., a company owned by Charlie Leadsham, a former East London barrow boy. Tony's fridge was loaded with 21 tons of Mars Bars, destination Kuwait. His gross weight was 40 tons, yet he handled his unit and fridge like a Formula I racer.

Tony, who was 38, had been driving to the Middle East for ten years. He was divorced, rarely saw his two kids but said he and his ex-wife, Irene, would remarry when he stopped driving. He offered to run with us to Baghdad. After obtaining our Iraqi visas next morning, we pulled out of the National, heading for the Greek frontier 342 miles away. We crossed the Sava River and drove through Belgrade on the highway to the south Serbian city of Nis.

That evening we raced through the hills of Kosovo on a narrow, winding road along which six British drivers had lost their lives earlier that year in the worst winter conditions on record. The night was cool and Graham's adrenaline was flowing. He leaned into the corners, shifting down into eighth and seventh gears, hurtling through the darkness like a juggernaut, a half-moon rising in the East.

After Titov Veles, once a Roman military post, we entered the Vardar River gorges and kept going until we reached the border. While the Yugoslav customs officers had been barely civil, their Greek counterparts were cheery and offered us slices of melon. They stamped our carnet, put a new seal on the back of the tilt and bid us safe journey. Our destination was Chris' restaurant and truck wash at the Shell service station one mile down the road. We arrived at 2:30 A.M.

Across Greece to the Turkish frontier

Saturday was supposed to be an easy day. We had 270 miles to run to the Turkish frontier at Ipsala. At mid-afternoon we had our first brush with disaster: a 25-ton Greek fridge careened by us on a blind corner and almost tipped over. The road had no shoulder and a 30-foot precipice was on our right. After an agonizing few seconds the fridge's back left wheels made contact again with the tarmac and off it sped.

At 10 P.M. we stopped at a BP station and restaurant one mile from the frontier, in no hurry as the border at Ipsala had closed at 6. Inside, a handful of tables were occupied, including the one with Stanley Mills, an owner-driver from Cheshire, returning empty after de-

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David Chamberlain, from the Isle of Man, was one of the drivers waiting in the desert outside Baghdad.

Graham Jones of Wales (right) and friend relax in Londra Camp, an official truck stop west of Istanbul.

livering chilled meat to an American air base in Turkey. We joined him for kebab and salad.

At 8:15 A.M. the first trucks were admitted into the Greek customs compound. Forty minutes later we crossed the Meritsa River into Turkey. We took our documents to the customs house, paid $210 in road tax, had our TIR carnet stamped and returned to the truck for "cabin control." A guard climbed into the cab and looked at the boxes of food on the lower bunk. "What's that?" he asked.

"*Camion* restaurant," Graham replied. Although French, in truckers' lingua franca *camion* has become the universal word for truck.

The guard smiled. "No food box?" (Many long-distance tractor-trailers have a locker on the side of the trailer in which the driver keeps his food and cooker.)

"No food box," Graham repeated.

The guard caught sight of an unopened pack of Marlboros lying on the portable cooker, placed there for him to see, and pocketed it. "OK," he announced and climbed down. Now we waited for the customs inspector to place the last seal on the tilt. Tony had told us to give him a 1,500-lira (about $3) "backhander." The inspector moved up the line, pocketing his $3 at the back of each truck. Not to pay it would risk hours of delay over some trumped-up hassle.

British truckers call Turkey "Marlboro country." We soon found out why. Hardly 15 minutes out of customs, on the road to Istanbul, Tony was pulled in by a *trafik polisi* waving a "lollipop"—a wandlike stick with a round reflector, red on one side and green on the other. By the time we reached the hillcrest, Tony had pulled out again and the policeman directed us to stop. The speed limit for TIR trucks in Turkey is 70 kmph (45 mph). "Tacho, meester," he demanded. Our tacho was OK, but he asked for a pack of Marlboros anyway. We had to give him one to get the disk back.

We reached Londra Camp, an authorized TIR park 20 miles west of Istanbul, in midafternoon. One of us had to surrender a passport to the gatekeeper to ensure that we would not leave without paying the overnight parking charge of $1.50. British drivers always park in the same row, sometimes sharing it with the French, Dutch and Swedes. Green and yellow Hungarocamion trucks were lined up along the western boundary of the camp; the Iranians, with their big Macks, Whites and Volvos, were grouped along the eastern wall.

Londra Camp was opened in 1964 by Mehmet Döyme, who ran an export-import business in Switzerland before returning to Turkey. "Few TIR trucks were on the road then," said Mustapha Döyme, Mehmet's eldest son who now runs the camp. Then, in 1968, after the family added a three-story motel and swimming pool to the campsite, four Astran drivers started stopping at Londra. Astran is the pioneer in intercontinental trucking. Founded in 1964 by two former students from Guy's, London's famous teaching hospital, Astran's first contract was for hauling Linotype presses to Kabul. It took the two partners—a dental surgeon and ex-medical student—three months to complete the trip, but they proved that overland transport to Afghanistan and the Middle East was viable.

Overland transport to Asia and the Middle East

Robert Hutchison is a Canadian economics writer who lives in Geneva. He is on a two-month run to Saudi Arabia, gathering material for a book.

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It's a long, long road to Iraq

boomed after the Bosporus Bridge was opened in 1973. "Soon we were getting 500 trucks a night," Mustapha said. Londra's record of 900 trucks was set during the winter of 1978 when the road to Ankara was blocked for a week by snow. Only 300 TIR trucks were parked when we arrived.

At Londra Camp's bar, drivers joke about having an *Efes kontrol.* Efes is the local Turkish beer. There we met Dave Meadows, driving for Duxbury International Freight Limited. "We're very cliquish, really. We won't even talk to T-Form Charlies," he said. (A T-Form Charlie is a cross-Channel driver who goes only to European destinations.)

Leaving Londra next morning, we took the eight-lane beltway to the Bosporus Bridge, catching sight along the way of the massive Byzantine fortifications dating from the fifth century A.D. The bridge is heavily guarded. On the Asian side of the Bosporus we paid a $38.50 toll and started rolling again, along the Gulf of Izmit, past Gebze where Hannibal died and into the Anatolian hills. In one village a boy on a bicycle had been killed by a speeding "tonka" truck. Villagers were covering his body with a sheet as we drove by.

Turkish trucks are called tonkas because they resemble the miniature ones made by Tonka Toys. They are five-tonners with extra rear axles, painted with pastoral scenes and fancy trim. Their drivers are perhaps the most fearless in the world. Tonkas are always overloaded, carrying up to 30 tons, with inadequate brakes and sometimes no lights. They go everywhere, carry everything and are frequently encountered on the side of the road, hood up, the driver bending over pieces of motor which he has spread on the ground. But when they go, they go like mad.

"It's a long and lonely road," Graham murmured as we trundled along, eyes heavy with fatigue, during our last hour to Ankara. At 9 P.M. we arrived at the Telex Motel. Three British trucks were parked in the lot along with a couple of French, but otherwise the Telex TIR park was almost empty. "Time for an *Efes kontrol,*" Tony announced. Upstairs in the restaurant, Cairo, the night manager, was pleased to see us. "Not much traffic," he complained. "Situation in Middle East is no good. Maybe another war soon."

We waited two days at the Telex Motel for our Iraqi manifest. On our second evening we received a lesson in *camion* cuisine from Alain Troussier, a swashbuckling French driver with a Rip van Winkle mustache. Alain was limping home in a tired DAF after "tipping" a load of construction material at a French development project in the south of Iraq. As he was returning empty from Basra, which is in the hottest battle sector of the five-year-old Iraq-Iran war, two cars in front of him exploded—they were either hit by rockets or ran over mines—and he drove into the desert to avoid them, bursting a tire. Next, in southern Turkey his windscreen was smashed by rock-throwing kids who wanted cigarettes. He talked about it as though routine—all part of the job. At least, he said, they threw no vipers at him. That, apparently, sometimes happens.

Romantics on the thin edge of disaster

In spite of their macho manners, most drivers are romantics, pursued by a sense of impending tragedy. They are forever driving along the thin edge of disaster. Danger of road accidents stalks them at every moment once they leave Western Europe; the odds of a mishap, as well as the consequences, increase as they head south and east. By and large, they lead lonely lives. Many suffer from broken marriages, poor nutrition, lack of physical exercise. They are always fighting fatigue and get the "munchies" for sweets, which gives them sugar rushes. Graham complains that the job has turned him into a tea addict. He fails to mention the 60 cigarettes he smokes each day.

We left the Telex Motel on Thursday. On the central Anatolian plain there are no fences, but straight telephone lines and ochre fields for as far as the eye can see. The landscape is starkly beautiful. About 200 miles south of Ankara the Taurus Mountains abruptly rise to heights of more than 12,000 feet. At first there appears to be no way through the mountains, but after nightfall we reach a narrow gorge known as the Cilician Gates, in places no more than 100 yards wide. For centuries the easily defended Gates marked the limit of European penetration into western Asia. They command the northern approach to the Tarsus Pass over the mountains.

Once through the Gates, Tony did not want to go over the Tarsus Pass at night, so we pulled into a service area and parked alongside 30 other trucks. The

Highballing with the hammer down, Davies passes an all too common sight: wrecked remains of a truck.

Meddings helps young Turk, driving for a Dutch company, change tires that blew in 100-degree heat.

At the Telex Motel outside of Ankara, Meddings (right) and his colleagues watch the movie *Convoy*.

Hauling 21 tons of Mars Bars in white refrigerator trailer, Meddings passes an overloaded "tonka."

In Turkey, drivers resecure load on a truck. Rocks around triangle reflector are part of the hazard signal.

wind gusting through the Gates shook Graham's tilt and kicked up clouds of dust. It was an unpleasant wind and, with the dust, grated on our nerves.

We started next morning at 7:45. At the top of Tarsus Pass, untethered donkeys stood in the roadway and herds of black goats, cattle and a few horses wandered across upland meadows which resembled the Alpes-Maritimes of southeastern France. Mount Taurus, dark and foreboding, rose on our right to a height of 11,762 feet.

The road leveled out for a mile or so and then climbed again before beginning its descent. Coming around a corner on a sharp uphill grade we almost collided with a tonka immobilized in the right-hand lane. The driver had placed some rocks in the middle of the road to warn of the hazard and had all but disappeared under his truck. We swung by him, narrowly missing an oncoming bus.

We reached Tarsus about 10. Saint Paul, although a citizen of Rome, was born here when it was one of Asia Minor's wealthiest cities. Alexander, Antony and Cleopatra visited the city, and Julian the Apostate, Emperor of Rome, is buried here. For a time Tarsus was governed by the Crusader princes and by Harun ar-Rashid, most famous of the Abbasid caliphs. Today Tarsus has been overshadowed by Adana, a textile center 20 miles to the east.

That afternoon we crossed another three passes, each more treacherous than Tarsus. It seemed like thousands of tonkas, buses and tankers were on the road with us. They passed us and each other in all three lanes, and sometimes on the right-hand shoulder as well. The first descent to a forested plateau offered no problem, but a Turkish tractor-trailer jackknifed in front of us and hit a tonka. Lumber and other material littered the roadside. On the far side of the second pass was a gold and green valley, flat as a pancake, bisected by two roads, with a backdrop of mountains painted orange by the sunset. The road down seemed slippery and Graham was concerned about jackknifing. We stayed in fifth, our outer wheels only inches from the precipice. "Makes you nervous, this does," he said.

Next morning we crossed the Euphrates and drove east all day, descending into Urfa, one of civilization's oldest cities, where Abraham is thought to have stayed on his way from Ur to the land of Canaan. Going through Urfa was like running in a stock-car race, only for trucks. The roadway—a divided "boulevard"—was under construction and full of potholes. After Urfa we encountered more road work, slowing us to 20 mph over miles and miles of gravel covered with white dust. Golden mountains lay to the north and Syria to the right. At 7 P.M. we arrived in Cizre after a tense descent on a disappearing road.

After a shower and meal at a roadside bistro opposite a floodlit oil derrick, we reached the border at Habur. We had to wait an hour while the Turkish customs officers broke for a midnight snack. At 1:30 A.M. we crossed into Iraq, setting our watches ahead one hour. While the Turks like Marlboros, Iraqi border guards, customs officials and police prefer Rothmans. We produced the Iraqi manifest and paid $30 for insurance and a pack of Rothmans in lieu of road tax.

We cleared Iraqi customs at 4:10, drove 200 yards down the road and parked. Ten other trucks were on the same bit of shoulder. At 8 A.M. we put on the kettle and prepared to roll while the day was still cool. A road sign indicated 343 miles to Baghdad. Desert most all the way. After descending an oil-slicked hill with two hairpins and a police wrecker waiting for an accident to happen, we loaded 150 liters of diesel at Dahuk for 15 cents a gallon compared with $2.74 in the United

Well-equipped driver carries diplomatic paperwork, tacho disks, cigarettes, coins from nine countries.

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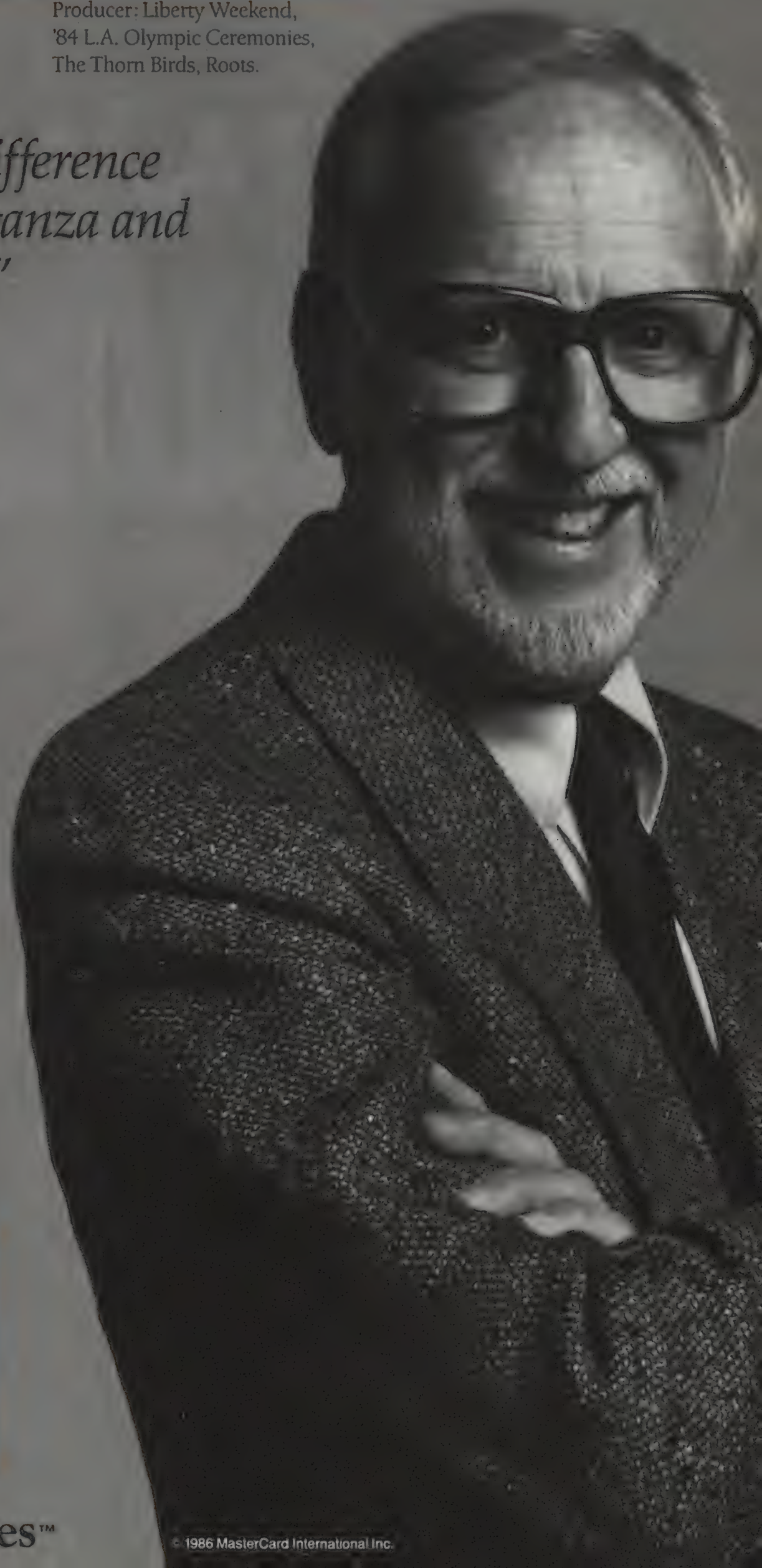

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Children wave gaily at the passing parade in eastern Turkey. Even the youngest often ask for cigarettes.

Kingdom. The storage tanks were encased in sandbags, reminding us that this was a country at war—not only with Iran, but also sporadically with its Kurdish minority. Each village we saw was guarded by an army detachment entrenched behind an earthwork palisade.

After Mosul we crossed the Tigris. By midday the heat was overpowering—112 degrees—and it was an effort to breathe. At 2 P.M. we stopped for a kip, but the flies made sleep almost impossible. We started again at 3. The roadside was an almost continuous junkyard of wrecks. North of Baiji we had passed a convoy of transporters carrying armored vehicles to Mosul, where earlier four helicopter gunships had flown over us. According to the *Baghdad Observer* there had been shelling at Mosul the day before. At Baiji the refinery was protected by ground-to-air missile batteries.

The sun was setting when an explosion rocked our cab. I thought we had been hit by a mortar. Then I saw smoke and bits of rubber flying from under Tony's fridge. One of his back right tires had blown. We were near Tikrit, birthplace of Iraqi president Saddam Hussein. By the time Tony was able to bring his truck to a halt, the 180-pound tire was reduced to shreds of metal wire and little rubber. By 8:15 P.M. we set off again for Falluja, 35 miles west of Baghdad on the Jordan Road, where customs for the governorate of Baghdad is located.

An hour later we passed the customs depot on our right. More than 1,000 trucks, the largest number of them Turkish, Jordanian and Kuwaiti, were parked at the depot. The Brits avoid the depot and park in the desert nearby. No lights out there, except for a floodlit cement factory about a mile away. We followed Tony past a row of Jordanian bulk carriers. Suddenly a set of headlights flicked on and off to guide us to a semicircle of seven British trucks; their drivers were in deck chairs, drinking beer in the dark.

The customs office was closed the next day as it was the Muslim New Year. We were condemned to sit for another 24 hours. As it is against the law for European trucks to park overnight in Baghdad or drive without trailers, we were, theoretically, prisoners of the desert.

The Mesopotamian desert is parched clay on which nothing grows without irrigation. The least hint of wind kicks up dust. On the first day of the Muslim calendar a gale was blowing and the dust was unbearable. David Richmond, a Duxbury driver, tried maneuvering his DAF into the lee of a Scania driven by David Chamberlain, but that didn't help. By mid-afternoon Mitch Michel, a driver from Shildon, England, had had enough and unhitched his tractor. He announced he was going to the Casino Hotel across the Euphrates for chicken kebab and beer. The rest of us piled in.

Other than ourselves, the Casino Hotel had no clients. In fact, it was no longer a casino: the former gaming rooms had been transformed into sitting rooms, furnished with copies of Louis XVI furniture and pictures of Saddam Hussein. Graham's instructions were to telephone the local office of Mivan, an Irish construction company which had the "kitchen" contract—

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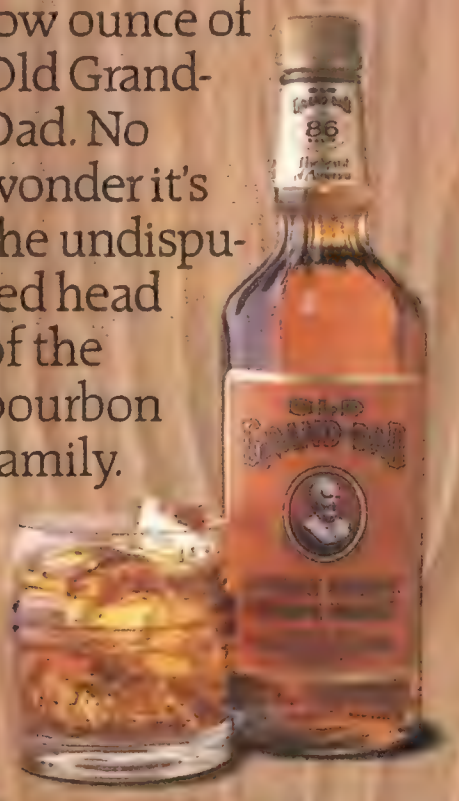

Old Grand-Dad

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Project 134. We called from Casino Hotel and a cheerful Irish voice sounded relieved to hear from us. Someone would guide us to "Paddy Camp" in the morning.

After sundown, the wind dropped. We drove back to our desert parking site to find the police there. A high-tension pylon lay broken on the desert and a cherry picker was lifting a new one into place. A police officer asked who was the driver of David Richmond's DAF. David maintained he hadn't felt anything when backing up that morning in the gale. An officer got into the cab with him. He was told to follow the police Range Rover which moved off into the night, its blue light flashing. That was the last we saw of him.

An hour later the Range Rover returned. A police officer said that David was under arrest. "Beeg problem," he affirmed. "One thousand dinar fine. Must go to court in morning."

At the official exchange rate at the time, that was close to $3,500. The officer got back into the Range Rover and drove off. Mitch and Tony, who were continuing to Kuwait together the next day, decided to drive into Baghdad first and notify Duxbury's agent.

At Paddy Camp, located in a western suburb of Baghdad, we learned that Project 314 was a multimillion-dollar renovation of Saddam Hussein's official residence, the plans for which included the banquet kitchen we had transported from Manchester.

Early Wednesday morning we were taken to a service gate on the north side of the building. About 9, we were told to leave Old Girl so that a Thai worker could take her to a site where the crates could be examined. We watched as our home and office of the past 18 days pulled out of the square, feeling a little uneasy.

We returned to pick her up later that afternoon. When we reached Falluja, now on our way home, David Richmond's DAF was standing alone on the desert. We later learned he made a second appearance in court that morning. Duxbury's agent paid the fine

At the end of the line outside Baghdad, more than a thousand trucks wait for the chance to clear customs.

and he was released. By noon we were on Highway No. 1, heading north.

We entered Iraqi customs at 10 P.M. but had to wait an hour to have our passports and transport papers stamped. Cabin control came next. The guard wanted Rothmans. We had none; 40 packs of cigarettes handed out in the past ten days. We still had a $2 flask of perfume. He took that instead and cleared us. Scores of trucks were jockeying to get to the final gate, where an officer checked to see that everyone had an exit visa.

We crossed the bridge into Turkey. As Graham attended to the customs formalities, I bought two cartons of Marlboros at the duty-free shop. We arrived in Cizre at 1 A.M. and parked at the roadside bistro opposite the same brightly lit derrick. We paid the 90-cent parking charge to a guard carrying a single-barrel shotgun. Too nackered to shower, eat or even drink a beer, we hit the sack.

The countryside had looked bleak on the way down, but next morning, after Iraq, it seemed absolutely green. Old Cizre, with its mosques and fortress, was opposite us on the right bank of the Tigris, which formed the border with Syria for the next few miles.

On Sunday we crossed the Bosporus and the following morning Graham telexed Whittle to request backloading instructions. A reply came late Tuesday to pick up furniture in Yugoslavia. We reached Hotel National on Thursday, backloaded near Sarajevo on Friday, then cleared customs in Zagreb on Saturday.

By Monday we were in West Germany. On Wednesday, Graham tipped his load of 320 wooden chairs near Portsmouth, and Thursday morning, October 3, he was in Preston. We had traveled 7,660 miles in 33 days. Leon handed him a check for $1,470, plus a $210 bonus for delivering the goods on time. He would get a second, smaller check later for backloading the chairs. The temperature was in the 50s and we loved it. By midday we were back at his house.

Davies and author spent a day on city's outskirts before they could unload, start trip back to England.

By Dick Houston

The boy and girl next door made movies far away

Martin playfully took measure of Pygmy tribesman on lobby card distributed by the Fox Film Corporation.

Exotic wildlife! Menacing 'savages'! African safaris! Martin and Osa Johnson thrilled audiences with pioneering documentaries

When I was a teenager in Ashtabula, Ohio, some 30-odd years ago, Hollywood was churning out one African movie after another—everything from *The African Queen* and *King Solomon's Mines* to *Mogambo* and *The Roots of Heaven.* My own favorite adventure films in those days were a series of creaky documentaries about Africa and other faraway places that had been produced decades earlier by Martin and Osa Johnson, a swashbuckling husband-and-wife team from Kansas. The titles of their movies (*Congorilla, Baboona, Jungle Adventures*) were hokey and the story lines were episodic, but the Johnson formula was irresistible: mount an elaborate safari, improvise various situations as you go along and film them on the spot.

It was the gritty authenticity of those old reruns that made them so appealing. When the Johnsons encountered a tribe of "cannibals" in the South Pacific, they filmed one of the men curing a human head over a fire. To document the natural behavior of lions, Martin would follow a pride around on foot for days, lugging his bulky equipment wherever the animals went. When he provoked a herd of elephants into charging the camera in Kenya one day, Osa stood there dutifully grinding away until the last possible moment. Then she picked up her rifle and brought the herd leader crashing to the ground only inches from the tripod. It all added up to terrific footage.

Today most people don't think twice about seeing spectacular nature and travel material on television or at the movies, but in the 1920s and '30s the Johnsons' films created a sensation. People stood in long lines to watch them and critics raved about them. Between 1917 and 1937, the intrepid couple undertook one expedition after another, making nine full-length movies, 17 "shorts" and at least half a dozen additional films for the lecture circuit. They also produced thousands of still photographs and somehow found time to write 18 adventure books as well. All of this in an era when intercontinental travel was by ship and cinematography was still in its infancy.

In their heyday, the Johnsons were movie stars of the first magnitude. Theater marquees and gaudy posters trumpeted their films, the press eagerly recorded their comings and goings, their adoring public turned out to greet them wherever they went. They maintained residences in New York and Nairobi, hobnobbed with the rich and famous. Osa bought her evening clothes in Paris and ranked as one of the world's best-dressed women for years. Despite all of that, the couple's appeal was based largely on the fact that they defied conventional notions of celluloid glamour.

The Johnsons made their mark at a time when leading men were debonair sophisticates and heroines were lacy visions of idealized femininity. Along came Martin with his shirt open at the throat, his safari hat pushed back on his head and a big grin on his open Midwestern face. Osa was his pal, a spunky little tomboy who chased wild animals through the bush, hunted, fished

The Johnsons donned helmets, goggles and smiled for publicity still to promote a flying safari in mid-1930s.

Namba tribesmen in New Hebrides studied posters for a movie the Johnsons had filmed on an earlier trip.

Looking chic in baggy field gear, Osa prepared to board the couple's first car, a Safari Ford, in Nairobi.

—did all of the things that men were supposed to do.

The couple worked hard at cultivating their image as the boy and girl next door, but of course they were a good deal more complicated than that. Martin was a workaholic, a daredevil who put himself (and Osa) in harm's way to get the pictures he wanted, and was a pioneer in movie-making techniques and technology. He was unpretentious, usually good-natured, and fond of practical jokes; he loved to terrorize visitors and native helpers by "removing" one of his eyeballs, an illusion he created with a handkerchief and a glass eye. He was also a tough guy. Joe Tilton, one of the Johnsons' sound men, remembers when a carpenter lost his temper and became abusive on location in Borneo. "Martin listened to him for a few moments," Tilton says, "and then decked him in midsentence."

Osa shared Martin's thirst for adventure but she was also a homebody. It was a standing joke among acquaintances that if Martin ever left a tent standing for more than two days, she would have curtains in it. She baked pies and breads, supervised bush camps with an iron hand and shot game for the pot. She was so good with a rifle that one of Kenya's most renowned white hunters compared her to Annie Oakley.

Martin could be temperamental and he swore a blue streak when he was angry. Osa was accustomed to having her own way. "When disputes occurred," one old friend recalls, "Osa was quickly reminded by a very stubborn Martin that her finger shaking had no effect

When Martin showed the movie, the Nambas were amazed to see their relatives and friends who had died.

Martin looked a bit shaken after Osa shot elephant that charged the camera while she was filming it.

on him." By and large, however, the Johnsons' collaboration was a remarkably smooth and successful one. It produced a body of work that challenged old stereotypes about wildlife, documented the existence of vanishing tribal cultures and helped shatter the tiresome image of Africa as the "Dark Continent."

The Johnson saga began in Independence, Kansas, where Martin's father ran a small jewelry store. One of the items in stock there was the Eastman Company's new Kodak camera, a nifty little boxlike device that took excellent black-and-white photographs. Martin learned how to use the thing and it wasn't long before he was journeying from one Kansas town to another in a pony-drawn buckboard as an itinerant photographer.

Johnson always did have the itch to travel. When he was 17 he took off for Chicago, and then knocked about in Europe for a while before signing on with the crew of a 45-foot schooner that the novelist Jack London and his wife wanted to sail around the world. Following one misadventure after another, the party ended up in the Solomon Islands, where the voyage was terminated because London was too sick to go on. By then, Johnson had experienced a stroke of luck that would turn out to be a major turning point in his life.

A motion-picture crew working for Pathé Frères, the French cinema company, had arrived earlier in the islands to film the natives there. When they learned that Johnson was a photographer, they asked him to help them out. Trying his hand at motion-picture work for the first time, Martin exposed some 2,700 feet of film—mostly general scenes of village life, scenery and close-ups of people.

Back home, Johnson used a copy of that film to illustrate a lecture about his South Seas experiences. Local audiences were fascinated by the novelty of the presentation, but at the Roof Garden Theater in Chanute one night, a 16-year-old spectator named Osa Leighty stomped out. She professed to be shocked at the sight of people wearing little or no clothing and later told Johnson that she thought his film was horrible.

Evidently she didn't think *he* was horrible, though. A few weeks later she introduced him to her parents. Her father, an engineer with the Santa Fe Railroad, eyed the 26-year-old adventurer suspiciously. Johnson was a strapping fellow, handsome and full of boyish charm. Osa was five feet tall, light-haired and vivacious. They were married in the spring of 1910 and shortly thereafter took the South Sea slide-and-film show on a barnstorming tour of the West.

A romantic honeymoon it was not. Traveling from one dusty cow town to another, the newlyweds slept in rooming houses, train stations and even on a pool table in a mining town. They finally scraped together enough money to get to New York City, where Martin

Dick Houston has retraced the Johnsons' old safari trails throughout Africa and he is now at work on a screenplay about the couple.

Game trail led to remote Kenyan lake where Johnsons spent four of their happiest, most productive years.

At night, elephant nicknamed Sweet Potato stole into Johnsons' Lake Paradise compound to raid garden.

Beck, a top executive with the Orpheum Vaudeville Circuit, was so impressed with their "act" that he offered them a two-year contract. They opened on Broadway at the Criterion Theater and played to packed houses for nearly three weeks before taking their show on the road.

At first it was thrilling, but after a while Martin tired of the constant repetition. He finagled a job as a technician with Orpheum's expanding motion-picture department in New York. When he had learned there as much as he could about the technical aspects of cinematography—how to shoot movie film, how to develop it, how to take care of it—he and Osa were ready for their first trip abroad.

They spent eight months traveling through the Solomon Islands and the New Hebrides on steamers, schooners, whaleboats and canoes. Martin's objective, as one movie trade journal of the day put it, was to film "the manners and customs of the last strongholds of cannibalism." Today, many scholars are increasingly skeptical of the notion that cannibalism was once practiced by certain cultures in a systematic or ritualistic way. But 60 years ago, when Margaret Mead was doing her landmark fieldwork in New Guinea, she assumed that it was a tribal tradition in that part of the world, and so did nearly everyone else, including the Johnsons. Their trip did little to enhance Osa's appreciation of aboriginal culture. She described one "savage" in terms that would make a modern anthropologist cringe, emphasizing that "he was the most horrible-looking creature I had ever laid eyes on."

Rescued by a British gunboat

On an island in the New Hebrides called Malekula, the couple almost ended up, as Osa might have put it, in the pot. They were seized by a hundred Namba tribesmen led by a notorious chief named Nagapate. He was "a figure so frightful as to be magnificent," Osa later recalled. Only the intervention of a British gunboat made it possible for them to escape.

The results of all that derring-do, a silent film entitled *Among the Cannibal Isles of the South Seas*, premiered at the Rivoli Theater in New York in July 1918. It featured Chief Nagapate, showed other tribesmen in the New Hebrides dancing on the grave of a man who had been buried alive, and depicted the striking beauty of islands with white beaches and clear waters. Critics called it "thrilling," "enthralling," "remarkable." It set box-office records all across the country.

Flushed with that success, the Johnsons steamed across the Pacific again. This time they could afford to camp out in the luxurious style to which they would become accustomed. Their 65 crates of gear were full of photographic equipment, air cushions and mat-

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Osa helped Kodak magnate George Eastman take bread from campfire oven on 1926 trip in Tanganyika.

Martin inspected negatives outside laboratory at Lake Paradise where he did all of his own developing.

tresses, boxes and boxes of food, even an electricity generator. They arrived in Borneo with high hopes of obtaining good wildlife footage. The weather turned out to be insufferable, the travel conditions were unspeakable and the jungle gloom made photography a nightmare. They struggled up the Kinabatangan River in native canoes, rafts and a Chinese junk, and floated back down on a houseboat. The only animals that didn't flee at their approach were leeches, spiders, crocodiles and snakes that dropped from the trees. Back in New York, Martin edited his Borneo film into a full-length movie called *Jungle Adventures.* It showed orangutans and monkeys, scenes of camp life, elephants charging, water buffalo stampeding. Audiences were intrigued, but Martin felt that he had failed to show what animals *do* in the jungle.

He and Osa decided to try their luck in Africa. Crossing Kenya's vast plains by train in the summer of 1921, they were awed by great herds of wildebeests, zebras, gazelles and giraffes. They quickly found out, however, that the creatures were so shy from years of being hunted that photographing them would be nearly impossible. In Nairobi, the famous game warden Blayney Percival told them about a remote lake atop a 4,500-foot forested mountain where, unmolested for centuries, the animals would be easier to work with. Mount Marsabit was in Kenya's Northern Frontier, 260 miles from the nearest supply depot, but the Johnsons decided to go there anyway.

A month later, they looked down on a spoon-shaped crater lake filled with egrets, cranes and ducks. Thousands of butterflies fluttered over the water like sequins. More elephants than the Johnsons could count wandered along an ancient path and gathered at the shoreline. "It's a paradise, Martin!" Osa exclaimed, and from that moment on that's what she called it: Lake Paradise.

Zeroing in on Martin's safari formula

When they ran out of money, the Johnsons returned to the States and released another movie, *Trailing African Wild Animals.* Most of it was devoted to miscellaneous footage of lions, rhinos and other wildlife, but toward the end a rough story line began to emerge, focusing on the trip to Marsabit. In that context, some action scenes were included—Osa running after three elephants, for example—that amazed audiences and reviewers alike. Martin was beginning to zero in on the safari formula that would increasingly be the hallmark of his work.

Martin was determined to make a complete photographic record of the wildlife around Marsabit but he knew such a project would take years. That being the case, he decided to build a headquarters on the moun-

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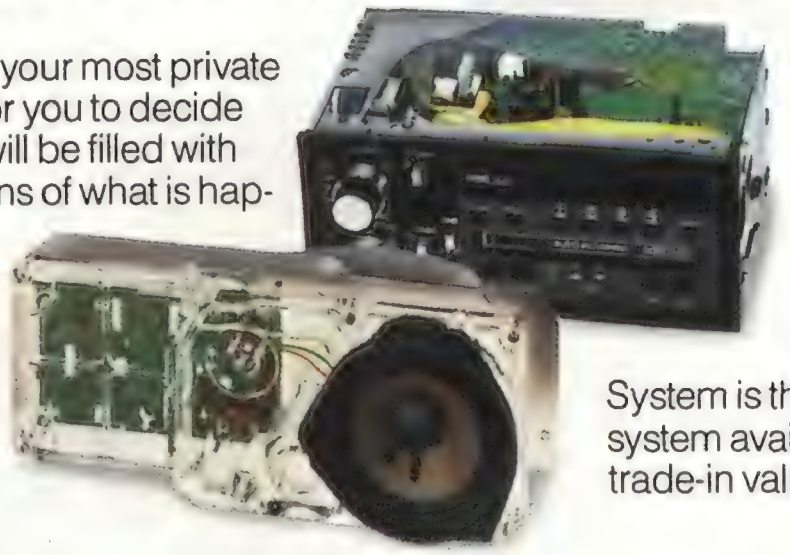

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A crack shot, Osa checked the telescopic sight on rifle during a trip to the Congo (now Zaire) in 1930.

The Johnsons, at center with rifles, were ready for action when 1926 lion-hunting expedition departed.

Beaming proudly, Osa displayed impressive catch at camp in Kenya. She loved to fish and excelled at it.

tain where they would live until their work was done. It was an outrageously impractical scheme but the American Museum of Natural History and George Eastman, the Kodak baron, were sufficiently impressed with the Johnsons' track record to back it. Five mule-drawn wagons, four oxcarts, four trucks, six overloaded Willys-Knight safari cars and 230 porters were required just to transport 255 crates of supplies (including $50,000 worth of camera equipment) across the Kaisut Desert. When the caravan arrived at Marsabit, 100 African workers began construction of a village on a rise just above the elephant trail. It included a grass-roofed home (with kitchen and bath), guest house, garage, carpenter shop, tool shop, staff housing and Martin's laboratory for developing film. Osa made shelves for the library and curtains for the windows. She collected stones for a fireplace, fashioned furniture from wood and vines, and planted a one-acre vegetable garden with seeds brought from Kansas. The workers built corrals for 16 cows and a poultry yard for more than 200 chickens.

The Johnsons spent four of the best years of their lives at Lake Paradise. They stalked zebras and elephants on the desert, hyenas and rhinos in the forest. At night they took flash photographs of big cats on the prowl. After a long day in the lab, Martin often went home to find a fire blazing in the hearth. Wearing an elegant pair of satin pajamas, Osa would light the candles on a linen-spread table and pour vintage wine into crystal goblets. Dinner might consist of caviar, freshly baked bread, candied sweet potatoes, wild-

Group sought specimens in Tanganyika (it is now Tanzania) for American Museum of Natural History.

buffalo oxtail soup and roast guinea fowl, followed by homemade strawberry ice cream. After Martin and Osa retired for the evening, a certain six-ton elephant was likely to sneak into the compound and make his way past the watermelons to the sweet-potato patch. After dining there with his eyes closed, Sweet Potato, as the Johnsons referred to the beast, would dissolve back into the forest as silently as he had arrived.

Life in Paradise was not without its trying moments. The Johnsons had their share of what Osa termed "little tiffs." Left alone for days without another English-speaking person to talk to, she sometimes resented Martin's obsession with his lab work and his occasional impatience with their helpers. When she got in a huff, she would hop on her mule, Lazy Bones, and go fishing for hours, or gather watercress in the forest.

Martin had a genuine sympathy for animals and he could explode in anger when a creature being hunted for food was only wounded by the first shot and had to be tracked down. He also became upset when his camera equipment failed at a crucial moment. On one such occasion at Marsabit, he yanked an expensive lens out of the camera and hurled it as far as he could. "It crashed against a tree and broke into smithereens," Osa later wrote, "and I was so angry that I . . . wouldn't speak to Martin all that night."

When finally it came time to leave, Osa looked out over the lovely lake and said a little prayer, asking the Almighty to protect the place forever as a sanctuary for wildlife. Then they made the long descent from their beloved mountain home for the last time. The year was 1927. Martin had shot and developed more than 200,000 feet of movie film, including some of the most spectacular wildlife footage ever taken.

In 1928, they went back to Africa, traveling up the Nile to film crocodiles and hippos and then heading down to the Serengeti Plain of Tanganyika (now Tanzania) to record the awesome spectacle of wildebeests in migration. Next they took on their greatest technical challenge: producing the first all-talking motion picture made entirely in Africa. It was shot mainly in the Belgian Congo (now Zaire) and featured a tribe of

Osa leaned out back window as Johnsons' safari car wallowed across Kenya's swollen Ewaso Ng'iro River.

In 1933, the couple flew to new heights in zebra-striped *Osa's Ark* (top) and giraffe-mottled *Spirit of Africa.*

Pygmies of Ituri Forest in the Congo crowd around Osa and safari car during break in filming there.

Wambutti Pygmies who were living in the Ituri Forest.

The footage from Marsabit and the subsequent expeditions was incorporated into a number of different lecture films and commercial releases in the late 1920s and early '30s. All were extravagantly praised. *Simba* presented a surprisingly sympathetic portrait of the supposedly ferocious African lion. *Congorilla,* the talkie, was narrated by Martin. Following the safari format, it showed compelling scenes of Pygmy life, contrasted dramatic long-range shots of plains animals with close-ups of crocodiles and hippos, and thrilled viewers with some sensational gorilla sequences, including the capture of two partially grown animals. It was so popular on Broadway that the Johnsons were obliged to make three personal appearances a day.

Other people were producing expedition films by then, but the Johnsons occupied a special niche of their own. It was not just that their movies were educational as well as entertaining; they were also exceptionally well made. Dissatisfied with telephoto lenses because the pictures were unsteady and fuzzy, Martin began using shorter and shorter lenses and working closer and closer to his subjects. He had lenses manufactured to special order and devised a camera with four of them mounted on a turret so he could change focal depth in a split second. He invented an enormous tripod that accommodated three different cameras, all operated electrically by remote control. He employed blinds and trip wires to get some wildlife sequences, put his cameras in trees for others and went out in boats to photograph crocodiles. (In Borneo, one of the Johnsons' hired hands was killed and eaten by a crocodile.) Martin used slow motion to add a lyrical touch to scenes of giraffes floating across the plains and tinted some of his films to achieve special effects. These and many other innovations gave the Johnson films a special look and made viewers feel as if they were actually participating in the excitement on the screen.

Exploring Africa by airplane

In 1933 the Johnsons added yet another dimension to their filmmaking with the acquisition of two Sikorsky amphibious airplanes. One, named *Osa's Ark,* was striped like a zebra; the other, dubbed *Spirit of Africa,* was mottled like a giraffe. The couple spent a year and a half flying those aircraft over some 60,000 miles of Africa. They took the first aerial motion pictures of Mount Kenya and Mount Kilimanjaro. They swooped down on the Turkana tribes of Lake Rudolf (now Lake Turkana) and gave audiences a bird's-eye view of thousands of animals spread across the Serengeti. In one whimsical and reckless moment, they crammed three dozen of their Pygmy friends from the Congo into Osa's ten-seater and went off for a joyride.

Martin grew increasingly concerned about flying—and with good reason. The Johnsons' crew hacked runways out of the brush and buried drums of gasoline for future use, but the planes often ended up with barely enough fuel to make it to a strip. Once, *Spirit of Africa* landed at night by the light of six flares that had been lit by the crew of *Osa's Ark,* which had landed earlier—at dusk. In Borneo, one of the planes flew smack into a storm and barely missed hitting the 13,455-foot peak of Mount Kinabalu.

The Johnsons' luck ran out in 1937 when, ironically, they were back where they had started—on the lecture circuit out West. They were aboard a commercial airliner that went off course in soupy weather and slammed into a mountain near Burbank, California. Martin died of his injuries the next day.

After recovering from a concussion and a fractured knee, Osa gamely went back onto the lecture circuit. Then she worked as a film consultant for a while and wrote some books. She married her business manager,

Clark Getts, but they were divorced a few years later. She never got over the loss of her first partner. She reminisced about the times she had nursed Martin back to health when he was feverish with malaria, about his practical jokes, about the close calls they had survived. She missed him, she missed the old excitement and she was desperately homesick for Africa. In 1953, she suffered a heart attack and died in her New York apartment. She was 58.

Despite the reissue of some of their films, Osa and Martin Johnson began to fade from public memory. It was Osa's mother, Belle Leighty, who rescued them from oblivion. She made reels of old movies, thousands of still photographs and piles of albums, diaries and letters available for a museum in Chanute, Kansas. The local chamber of commerce and volunteers financed the creation of the Martin and Osa Johnson Safari Museum in 1961. Today it is the custodian of an invaluable historical period. For laymen and scholars alike, the Johnsons' film legacy serves as the ultimate documentation of wilderness areas, tribal customs and safari ways of life that no longer exist. "The museum collection will become more and more valuable as time goes on," emphasizes the noted zoologist George B. Schaller. "It's a repository where one can go and see what the Earth was once like."

The museum is a fitting tribute to its namesakes but an even more affecting one, I would like to think, is Mount Marsabit. As a youngster I used to dream about going there and when I finally did some years ago, it turned out to be even more beautiful than I had expected. The forest had long since overgrown the Johnsons' compound, but Osa's prayer, it appeared, had been answered. When I went back last year, it was a different story. Marsabit had been designated a national reserve by then, but the pressures of development were plain to see. The small town at the foot of the mountain where I spent the night on my first visit had exploded into row upon row of tin shacks. Woodcutters had gnawed away at the forest and the lake had nearly dried up in a recent drought. I saw only one elephant. He was shuffling along a hillside as nonchalantly as a predecessor of his once lumbered through a vegetable garden in Paradise.

In haunting portrait by Martin, Osa pauses before her husband through the gathering mist. Forest has long since reclaimed site where compound was built. Lake Paradise home on a rainy day and smiles back at

By Phil Patton

How art geared up to face industry in modern America

The arrival in force of the 20th-century Machine Age posed problems for artists, yet many were creatively inspired by it

Marcel Duchamp, visiting an exhibition of industrial design with his friend Brancusi in 1911, stopped in front of an airplane propeller. He was silent for a while and then he said, "Painting is finished. Who can do any better than this propeller? Can you?"

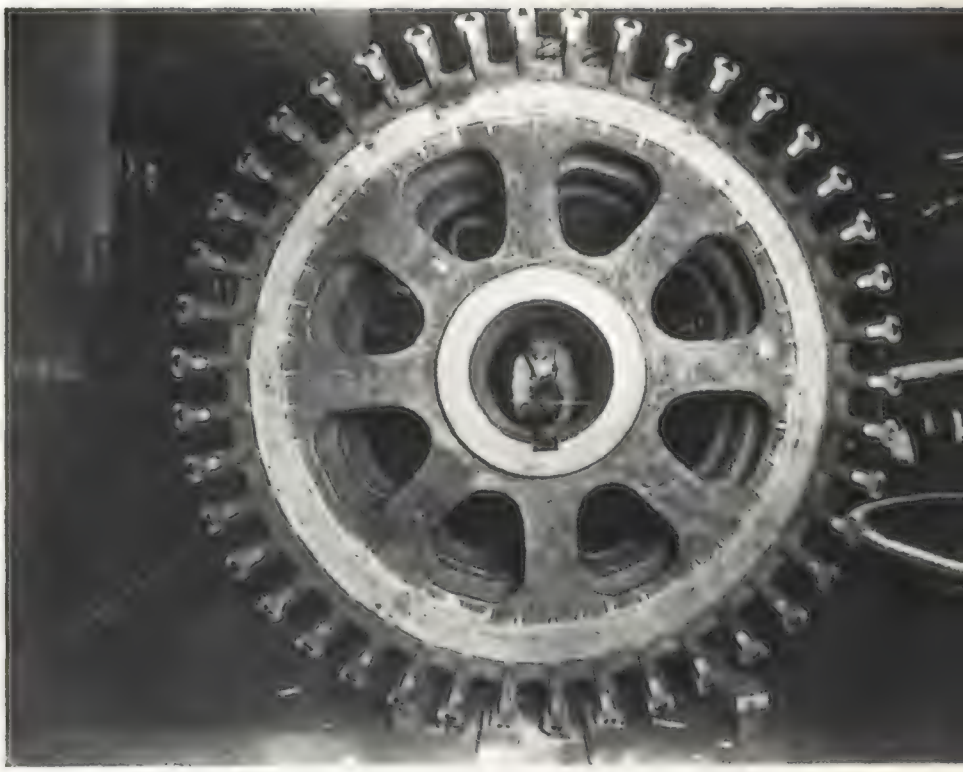
The machine and its products confronted the 20th-century artist just that directly, with a challenge to his whole endeavor. Some artists tried to compete with the machine; others composed hymns to it. Some attempted to collaborate with it, others to condemn it. But the existence of the machine has been as inescapable a fact of esthetic life as of everyday life.

Duchamp himself "gave up art" in 1921 after returning to Europe from New York, saying that he had become "an engineer" instead. It was a gesture completely in keeping with his display of a urinal as a "ready-made" sculpture, with his affection for the cartoons of Rube Goldberg and with his quip that America had given the world just two great works of art—its plumbing and its bridges.

How artists came to terms with machines is the theme of a major exhibition now at the Brooklyn Museum through February 16, 1987. "The Machine Age in America 1918-1941" takes the first sweeping look at this period. It will travel to the Carnegie Museum of Art in Pittsburgh, the Los Angeles County Museum of Art, and the High Museum of Art in Atlanta.

The show's curators are Dianne H. Pilgrim and Richard Guy Wilson, who put together the important "American Renaissance" show of 1979, also at the Brooklyn Museum. The chronology of "The Machine Age" segues neatly out of that exhibition and its ambition is similar: to define the spirit and sensibility of the era. Comprising 270 objects, it attempts to sketch the spirit of the machine, in painting, sculpture, architecture, fashion, decorative arts and industrial design, photography and motion pictures.

The show of necessity ranges widely. It draws anal-



Gerald Murphy, in *Watch*, 1925 (left), went inside of timepiece for harmony. Above, Lewis W. Hine put a man in the heart of a turbine for a different effect.

ogies between such works as Isamu Noguchi's glistening metal bust of R. Buckminster Fuller, and Cedric Gibbons' design for Oscar, the Academy Award statuette. It reintroduces such neglected figures as the graphic artist Louis Lozowick. In the process it illuminates a period of vital change.

An accompanying catalog, published by the Brooklyn Museum in association with Harry N. Abrams, is an essential Baedeker to the far-flung territories represented by the show's selections. The exhibition comes at an appropriate time: the new, light high-tech machinery of electronics has given us perspective on the heavy machinery that dominated those years—we look now almost with nostalgia at the time when American smokestack industry was dominant.

The conflict between art and the machine had been sketched out in the first years of the century. Walking through the Gallery of Machines at the 1900 Paris Exposition, Henry Adams was both fascinated and disturbed. It was then, he recalled in *The Education of Henry Adams*, that he conceived of his famous opposition between the Virgin and the dynamo. The dynamo, to him, was much more than a simple piece of electricity-generating equipment. It also seemed to generate a more fundamental, almost mystical power. He felt it "as a moral force, much as the early Christian felt the Cross. . . . Before the end, one began to pray to it." The dynamo stood for the technological powers which Adams prophetically saw changing the spiritual and esthetic, as well as the practical, sides of life.

In the years after World War I, feeling the United States was thrust into a new role of economic and social leadership, many artists began to see the machine as their special province. Lacking the long cultured tradition of Europe, they began to substitute the unfolding future for the monumental past: the American frontier in the arts became the technological one.

American artists, of course, were not alone in their fascination with the machine. In Europe, such young

artists as the Italian Futurists were also embracing machines. Even the mechanized slaughter of World War I could not diminish this ardor; they hailed the machine's violence as a necessary part of the new beauty it represented. Such Futurists as Umberto Boccioni, Giacomo Balla and Filippo Tommaso Marinetti included even the machines of war in their affections. They claimed that the machine was as fundamental a source of beauty as the classical ideals of the past. "The roaring automobile is more beautiful than the Winged Victory!" cried one of the Futurist manifestos. On canvas, they showed that what they appreciated about the machine was chiefly its speed and violence. Their machines seemed to be rendered most often in a kind of cartoonist's shorthand for speed—multiple images, streaks of motion, blurring as if in a photograph.

Another reaction, exemplified by the French Purists, was to see in the machine not its motive side but its restful one: to view it as a composition of pure geometric forms. Purism developed its architectural equivalent in the style of Le Corbusier, whose famous declaration that "a house is a machine for living in" translated in practice to an assemblage of concrete cubes and cylinders.

What ultimately clinched America's special claim to the esthetics of the machine lay outside the finest arts: in the popularization of machine imagery for consumer goods. This change was no less American for the fact that many designers who accomplished it—such as Austrian-born furniture designer Paul T. Frankl or French-born Raymond Loewy—were European.

In 1883 Oscar Wilde had visited the American West, lecturing and living up to his dandy role by wearing a large sunflower in his lapel at all times. It was on this trip that he observed the famous sign in a saloon in Leadville, Colorado: "Please do not shoot the pianist. He is doing his best."

The sign was perhaps a backhanded excuse for American art. To Wilde, the quintessential esthete, it seemed that where Americans had self-consciously set out to produce beauty "they have signally failed." The resulting work was gaudy and derivative. But when Americans built machines, they succeeded in creating works as beautiful as any piece of art. Wilde called the Chicago waterworks "the most beautifully rhythmic thing I have ever seen." There was no country, he added, where machinery was so beautiful as in the United States.

So it fell to Americans to lead the artistic response to the machine—and in a particularly American way.

"America is a nation of consumers," said Paul Frankl, the designer of couches inspired by speedboats and desks by skyscrapers. Americans had little use for abstract ideas about art, he noted. Art had to be sold, like refrigerators or soap. So the shows of importance for introducing the new esthetics of the machine—furniture such as Frankl's and styles such as Art Deco and Art Moderne—were not those at the Museum of Modern Art or the Metropolitan Museum but those at Macy's and B. Altman.

Under such ministrations, commercial resistance to the machine turned into an embrace of it. Radios had been hidden inside pieces of Colonial-style furniture—now they leapt out in bright Moderne plastic cases. Automobiles had been designed as "horseless carriages"—mechanized broughams and phaetons; now they took on streamlined shapes that aimed at aerodynamic efficiency and the look of the future.

In America, as in the England of William Morris, handicrafts had enjoyed a revival in response to machine mass production; now a new breed of industrial designers, many of them graduates of theater design, emerged to demonstrate the potential drama of machine-made products. And painters, sculptors and photographers who had sought escape from the industrial age into a hazy and romantic pastoral began to reflect the spirit of the machine. Their abstractions aimed to merge space and time. Their hard-edged literalism heroized factories and lathes, highways and neon signs.

There are machines aplenty as the subject of artists' works in the Brooklyn show: Stuart Davis paints skyscrapers; Paul Strand photographs machine tools; Man Ray combines angular metal and the shape of a hardware-store C-clamp into a sculpture called *New York 17* (p.160). Gerald Murphy, F. Scott Fitzgerald's friend, renders the exposed works of a pocket watch (pp.156-57). Arshile Gorky's studies for murals for Newark

Phil Patton's book, Open Road: A Celebration of the American Highway, *was published last June. He wrote on motels in the March issue of* SMITHSONIAN.

Russel Wright's softly toned and shaped "American Modern" dinnerware caught right on in the late '30s.

Tray, c. 1935, like many everyday objects, was cubist in design.

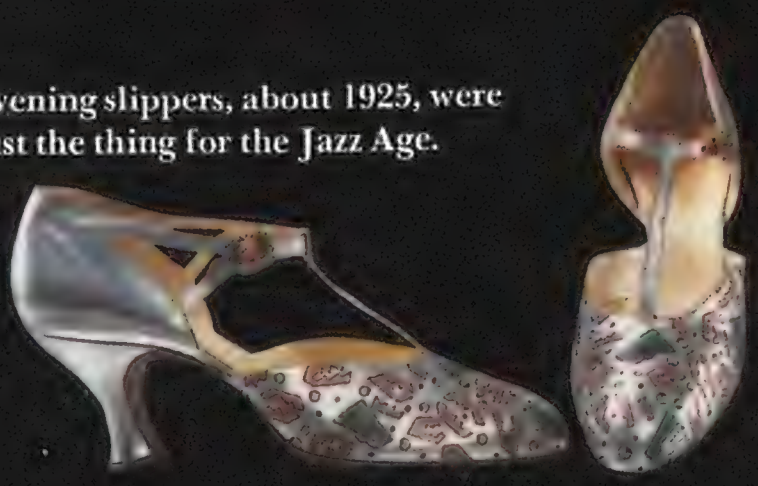
Faceted vase, about 1928, reflected spirit of the age in cubic planes.

Glittery metal-mesh evening bag summed up a night on the town.

"Bluebird" radio, 1937-40, also by Teague, was pure music in effect.

Walter Dorwin Teague designed Kodak gift camera and box in 1930.

Evening slippers, about 1925, were just the thing for the Jazz Age.



Plastic jewelry—rings, bracelets, pins, from the mid-'30s—was bright and cheap.

These gates, by Rene Chambellan, stood at entrance to Executive Suite of New York's Chanin Building.

Skyscrapers inspired Man Ray's *New York 17.* This is a 1966 reconstruction of the 1917 sculpture.

Airport catch the spirit of aviation in hovering and soaring shapes. (Thanks to one of the shapes—a red star—the U.S. Army during World War II deemed one of the murals subversive and painted over it.)

Margaret Bourke-White photographs the dynamo itself. A photograph of Francis Picabia's precise drawing of a spark plug, crisp enough for a Western Auto catalog, emblazoned with the trademark FOR-EVER and titled *Portrait of an American Girl in the State of Nudity,* suggests some wild Dadaist combination of Virgin and dynamo.

But it was not so much machines, as "the machine," that served as inspiration to the artists of the period, and the Brooklyn Museum's exhibition does not stop with treatments of the machine as subject. It reaches into architecture and the decorative arts, where the imagery of the machine became dominant. And it ventures into engineering and industrial design—two areas for which, in the period between the wars, new claims of artistry were being made for the first time.

The machine had produced new perspectives of time and space; that was clear. There was much talk of the effect on our world view of the Einstein revolution—the unity of time and space was supposed to have inspired everything from Picasso's Cubism to Marinetti's Futurism. But often the results of trying to render this new perspective on canvas came out looking, to most people, like what one critic famously called "an explosion in a shingle factory." He was referring to Marcel Duchamp's *Nude Descending a Staircase, No. 2.*

It was the objects that actually did travel through

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Margaret Bourke-White used this photograph to announce her studio in same building, the Chrysler.

View from above became trademark of Busby Berkeley films. This scene is from *Footlight Parade*, 1933.

space and time—airplanes, trains and automobiles—that lent their forms to much of the new sensibility. The mental dislocations caused by these devices, in fact, had a much more direct effect on people's daily thoughts and perceptions, of course, than on whatever vague understanding they might have possessed of the new physics. Even Henry Adams, writing not about the dynamo but the Virgin, as embodied at Mont-Saint-Michel and Chartres, found that the best way to get between the two places was by automobile.

Aviation, symbolized above all by Charles Lindbergh, surely helped inspire the fancy for streamlining. But automobiles and locomotives were streamlined at about the same time as airplanes were. Pioneer streamlined aircraft such as the Lockheed Sirius monoplane and the Douglas DC-1, -2 and -3 airliners appeared between 1929 and 1935. The famous Chrysler Airflow rolled in view in 1934.

Streamlining was the province of a new breed—the industrial designers, led by the foursome of Walter Dorwin Teague, Henry Dreyfuss, Raymond Loewy and Norman Bel Geddes. The designers were flamboyant characters, skillful self-promoters and firm proponents of the view that the machine ethos was as critical to their age and as historically important as the classic ideals of the Greeks or the Gothic grandeurs of the cathedral builders. In his influential book *Horizons*, Norman Bel Geddes juxtaposed a photograph of a cathedral's rose window with one of a Lycoming radial aircraft engine—here again, the dynamo was at once opposed to and equated with the Virgin.

These men were, above all, packagers, enclosing angular, awkward pieces of equipment in shells—telephones, refrigerators, scales, duplicating machines. And it was to vehicles that they looked for the shapes of the shells. The result was the streamlining of immobile objects.

Streamlined winds of change

Raymond Loewy had slicked up refrigerators for Sears and changed their profiles as often as Ford or Chevrolet to keep the style fresh. But his most famous —or notorious—design was for a streamlined pencil sharpener (p. 164).

Streamlining took on a meaning far beyond its original function. It was almost as if those curved corners, those vertical lines serving as a sort of cartoon shorthand for motion, were created to slip through not physical winds but the winds of change. They seemed shaped by the sense of the rapidity of the machine's evolution and by the sense of the future—both as a promise of prosperity and peace and as a threat of their opposites—rushing about the forms.

It was an art made possible by the machine, how-

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Raymond Loewy's pencil sharpener, 1933, illustrates application of streamlining to ordinary objects.

The now classic Cord 810 Westchester sedan made bow in 1936, was dashing design of Gordon M. Buehrig.

John R. Morgan took up the outboard motor and turned out this gleaming aluminum beauty in 1936.

ever, that did the most to explore the machine: motion pictures. Orson Welles was to call the equipment of cinema "the world's biggest toy-train set," and the camera was to render the sensations of the technological telescoping of time and space. The Age of the Machine was the first great age of the movies. Film depicted the machine's wonders and protested its abuses, captured its romance and laughed at its absurdity.

Frank Capra's *It Happened One Night* was an enormously successful comedy of 1934, starring Clark Gable and Claudette Colbert. It was also, as historian Warren Susman has pointed out, a virtual tour of the machine world. The two stars encounter telegraph and telephone, train and airplane, automobile and even autogiro in the course of their rambling adventures.

The machine also helped choreograph the movies. As Pilgrim and Wilson note, Busby Berkeley's screen musicals deployed chorines like machine tools, in flexible assembly lines. The catalog draws a comparison between the concentric circles of *Footlight Parade* (p. 162) and the radial arrangement of the cylinders in the Wright Whirlwind engine that powered Charles Lindbergh and the *Spirit of Saint Louis* across the Atlantic—a dynamo of Virgins perhaps?

The movies demonstrated just how much social relationships had to be mechanized in order for people to work along with machines. Business and industry had looked, for instance, to Frederick Taylor's and Frank Gilbreth's time-and-motion analyses of the factory and office worker for ways to "streamline" the job and increase output.

Carried to an extreme, of course, this approach committed the sin of confusing the individual human be-

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Alfred Stieglitz' *Georgia O'Keeffe* juxtaposed his wife's caressing hand and wheel of her 1932 Ford V-8.

ing with a part of the machine. Chaplin protested this attitude in *Modern Times*, with such famous scenes as the worker being force-fed his lunch by a machine. In the process, his comedy humanized the machine. It is significant that imagery from Chaplin (SMITHSONIAN, July 1986) is used in IBM commercials seeking to present the personal computer as a machine humans can control.

In addition to their time-and-motion studies, the industrial analysts took long-exposure photographs tracing workers' movements. The track of a light on a tool in use produced abstract shapes—tracings of the work. Those shapes were records of the interaction of man and machine. But they were also made by human beings—they reflected the function of the arm as much as the welding torch it held. They resembled the "biomorphic" forms popular with painters like Stuart Davis and sculptors like Alexander Calder. It was also such forms that were intended when Lewis Mumford, Frank Lloyd Wright and others invoked the "organic" as a value to counteract the merely mechanical.

The 1920s and '30s saw the traditional, more or less romantic ideal of the single artist struggling against the world give way to an expanded view: there was art, of a particularly American sort, in the engineering of Boulder Dam, critics began to argue, and in the shape of the common hardware pliers or saw.

The spirit of the machine began to break down the walls behind which art had long been able to hold off vulgar and commercial invaders. The industrial designers, in the view of many traditional critics, were glorified salesmen, advertising agents, packagers—but now they were welcomed into the Museum of Modern Art and the Metropolitan. And artists themselves, as the show's catalog reminds us, were in vogue with admen—Charles Sheeler was hired to photograph Henry Ford's new River Rouge plant in Michigan for an ad; he later added Kohler plumbing and Canada Dry to his client list. Edward Steichen found no problem with reconciling his work for advertising and magazines with his "art" photography. And the industrial designers got much of their work through ad agencies: J. Walter Thompson helped make the career of Norman Bel Geddes.

And while Americans, despite the best efforts of the Museum of Modern Art, resisted high Modernism and the International Style in architecture, commercial blendings of the new trends helped produce the most heroic buildings of the time. The Modern, modified and marketed, became the Moderne. High Modernism had its champions, of course, like Richard Neutra, the Austrian émigré who found Los Angeles a fertile ground for his vision. He did houses for, among others, film director Josef von Sternberg. Neutra was obsessed with the variety of building materials available to the American architect. He specified the installation of Model-A Ford headlights to illuminate the stairs of his masterful Lovell House. One of his students, Harwell Hamilton Harris, joked that "for Neutra, Sweet's Catalog [for building products] was the Holy Bible and Henry Ford the Holy Virgin."

Enter the skyscrapers

But it was in particularly grand and dynamic sorts of structures that the machine had its effects on architecture. Like the Virgin, the dynamo had its cathedrals: dams, factories, bridges, but above all, skyscrapers. In the skyscrapers were headquartered the corporations that made the machine world. Beginning with Cass Gilbert's Woolworth Building, the neo-Gothic tower that was consciously named the "Cathedral of Commerce," skyscraper builders sought to sum up the soaring aspirations of the Machine Age.

Walter Chrysler commissioned the flashiest architect he could find—William Van Alen was known as the "Ziegfeld of his profession"—to design for him a building topped off with Krupp "KA 2" stainless steel and decorated with ornament derived from the very motor cars whose sales paid for the tower. "Just make

it *big*," Chrysler is supposed to have told Van Alen.

The relation of the new industrial art to the old crafts was perhaps symbolized by Chrysler's installation of a set of tools from the blue-collar beginning of his career, like holy relics, outside the elite Cloud Club in the building's spire. (Three years later, Chrysler took a gamble on the first streamlined production automobile, the Airflow, and nearly lost his shirt; for once, he was too far ahead of the public.)

Other arts looked to the skyscraper for inspiration. Margaret Bourke-White summed up the daring of the Chrysler Building with her own daring venture out onto its edges to photograph the top in dramatic close-up (p. 162). Georgia O'Keeffe painted Raymond Hood's American Radiator Building. In the decorative arts, Paul Frankl derived bookshelves and desks from the skyscraper, turning out pieces that are both lovely and playful and that beat Post-Modernist designers at their own game before its rules were even written.

Bridges, too, continued to exercise the appeal first exhibited by the Brooklyn Bridge (SMITHSONIAN, April 1983), whose girdered and cabled roadway emerged from Gothic-accented towers like the dynamic age emerging from the virginal one of the past. Artists were fascinated by it. When Hart Crane looked for illustrations for his poem "The Bridge," he turned from Joseph Stella's paintings to the photographs of the young Walker Evans.

Another bridge served to signal the ultimate victory of the dynamo. As originally designed, the George Washington Bridge, linking upper Manhattan with New Jersey, was to feature two classic granite-sheathed towers designed by Cass Gilbert, creator of Woolworth's original Cathedral of Commerce. But when the steel skeletons of the two towers were finished in 1931, the public was so fond of them that it demanded their machine-made shapes be left naked. Thousands of letters poured in to the bridge authorities and carried the day: the towers remained uncovered, a kind of monument to the heroic age of the machine.

A surreal painting, *War Bride*, 1940, by Clarence Carter, was originally titled *Bride in a Mechanized World*. Not all artists idealized the machine. Carter and others warned of its frequent frightening effects.

Opposite: A single leaf sets off layers of cracked ice, formed when the water was at different levels.

Above: Layer of frost on top of the ice blurs the forms of dried grasses and dwarf heavenly bamboo leaves.

Photographs by Eduardo Fuss

Ice as a window on the still life of a pond bottom

A photographer's fascination on a winter walk became a 15-year labor of love: capturing on film the ephemeral beauty of crystalline water

Since the early 1970s, when he became fascinated by the patterns of ice along the edges of streams in Westchester County, New York, Eduardo Fuss has been photographing ice. He later moved to New Mexico, where every winter he patrols a pond in back of his house and also the streams around Santa Fe. Most of the shooting is done in the morning, before the ice melts away. Fuss has learned to "shoot now," because the pictures will soon liquify.

Also a painter, Fuss looks for the compositions and colors another artist might find in a bowl of fruit. He finds an endless variety both in the ice and in the objects that it imprisons. He and writing partner Susan Hazen-Hammond are working on a book about ice.

Fuss tells of being out on a frozen pond in Westchester one day, with his camera on a tripod pointed straight down, when a skater came over to ask what he was doing. Fuss invited him to look through the viewfinder. The man whistled. "I've been skating here for 20 years," he said, "and I've never looked at the ice." Then he glided off, stopping every few feet to look down at the frozen world he'd been missing.

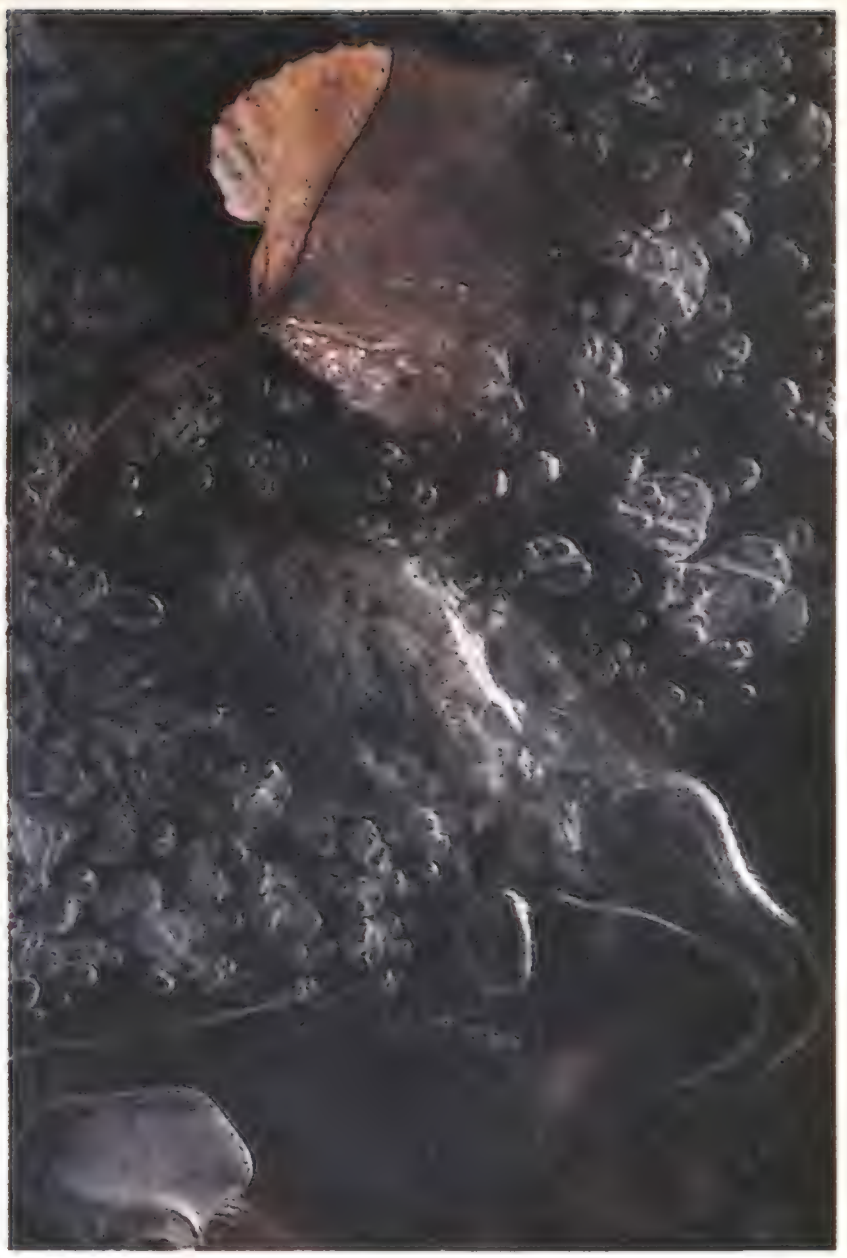
Ice that has melted to about one-eighth inch is a window on bamboo-leaf composition.

Bubble patterns give a three-dimensional effect to ice on a slow stream.

Bands of ice at edge of pond (below) have patterns of galvanized steel. Soft ice (right) turns leaves and grass into abstract art.

Opposite: This ice formed as water was soaking into the dirt along edge of pond.

Cedar forms background for leaves emerging from ice.



A poplar leaf is caught in the bubbles of stream ice.

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By Joseph Kastner

An ordinary bird that had the whole nation up in arms

The house sparrow's spread across America once lit the fuse of ornithological warfare

The Great Sparrow War is not mentioned in the histories of the United States, yet—within its special company of combatants—it aroused as much emotion as, say, Coxey's Army or Dorr's Rebellion. It was waged, in the latter half of the 19th century, over an alien songbird, *Passer domesticus*, a.k.a. the house or English sparrow, and although it began as a local war within the boundaries of ornithology, it spread to engage thousands of Americans. The leaders of the opposing forces were several strong-minded men: an eminent ornithologist who used to go bird watching with John James Audubon, facing a prodigious scientist who believed devoutly in both birds and ghosts; the country's most eloquent preacher, who knew very little about birds, opposed to a future President of the country, who knew a great deal about them (more, in fact, than any other President of the United States, including his bird-watching cousin, Franklin Delano). Also involved were some mayors of Boston, who kept switching allegiances, and caught fatally between the battle lines were some predatory birds called loggerhead shrikes, which innocently took up residence in the Boston Common.

The bird over which the war was fought seems too unassuming a creature to be a casus belli. It is small, drab, a poor singer and probably as little appreciated as any bird on Earth. Nevertheless it is attached to humankind and, seeking out Man's company, has made itself at home almost everywhere in the world except in the nomenclature of ornithology. For one thing, though it has been commonly called English sparrow, it is not English. It is, in origin, probably Middle Eastern or African and crossed a continent to settle in England and to get a name. For another thing, it was not, for centuries, considered a sparrow but a weaver finch. And a weaver finch is not, taxonomically, a true finch. (It is more correctly called a weaverbird.) It was not until a few years ago that the English sparrow gained its own identity by being separated from the weaverbird family and put into one of its own, the Passeridae, as *Passer domesticus*, or house sparrow. Even then, it has had to share its name, unjustly, with many interlopers also called sparrows—song sparrow, tree sparrow, chipping sparrow, et al., which are not true sparrows or Passeridae but Emberizidae related to cardinals and buntings. This is the kind of confusion, of course, which hovers over all wars.

The long rejection by the classifiers is perhaps a metaphor for the more general status of *Passer domesticus*, which has generally been looked on

With origins in Middle East, immigrants arrived in a Brooklyn cemetery in 1853.

Illustrations by Lane Yerkes

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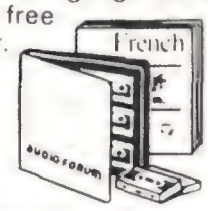

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as a pariah among birds, so scorned, in fact, that it is one of the very few songbirds not protected by federal conservation laws. Anthropomorphic birders have ventured the opinion that just because it is such an ornithological outcast, *Passer domesticus* has set out to take over the world in which it seems so unwelcome. Pushing its way out from its home in the Middle East, it moved into Europe and parts of Asia some 20,000 years ago. Since 1800, emigrating with Man's help, it has made its way into all corners of the world, thriving particularly in urban habitats, and today it lives on every continent except Antarctica.

In 1853 it was "successfully" introduced into America—ornithologists used to put those quotation marks around "successfully" to dissociate themselves from any implication that they thought the introduction was a good thing. An earlier attempt to col-

Sparrow was widely considered a pest by any other name, and it had quite a few.

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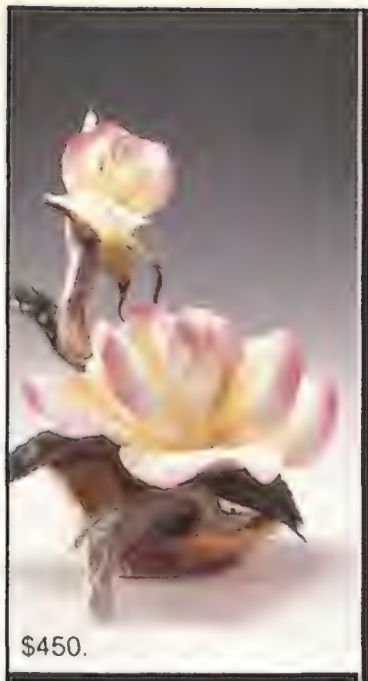

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onize them had failed but this time they made themselves at home in Greenwood Cemetery in Brooklyn. They had been brought in because they had the reputation of being busy breeders and voracious eaters of insects and it was hoped they would end a plague of cankerworms and spanworms that were eating the leaves of American trees. They lived up to their reputation as breeders but not as insect eaters, turning out to be mainly vegetarian. Though they did eat some destructive insects they preferred the undigested grain found in horse droppings. Nevertheless, seemingly every American city east of the Mississippi felt it had to have English sparrows. Cleveland, Ohio, bought some in 1869. In 1875, Sheboygan, Wisconsin, bought six birds. In 1876, Dubuque, Iowa, bought 20 pairs and Owosso, Michigan, four birds. It was a sign of progress, someone observed, like installing illuminating gas.

Within a couple of decades, however, the English sparrows were being looked on as a nuisance and even a menace. They were the tough new kids on the block. Belligerent, greedy and prolific, they soon outnumbered the original inhabitants, ganging up on bluebirds and martins to chase them from parks and backyards. While they did eat cankerworms and spanworms, they also usurped the nesting places of native birds which destroyed many insects and this brought on an epidemic of tussock moths. Sparrows not only disdained these caterpillars but displaced the birds that normally ate them.

People began to object to what someone called "their prompt and confident manner of taking possession of new territory, their rank hoodlumism." After a while, the sparrow's spread was followed like some kind of black plague. By 1886, they were in every state east of the Mississippi. In 1875, at least one colony was reported

The author's A World of Watchers, *from which his article is adapted, will be released by Knopf this fall.*

In some cities, sparrow trappers worked at night while the birds' defenders rallied by day to set them free.

in Utah and another in San Francisco. They were tracked to Tucson and Tombstone. They became a cause of local skirmishes, enemies trapping them by day and supporters sneaking up in the dark to set them free.

Nowhere did they engender so much bitterness as they did in Boston, which became a major battlefield of the sparrow war, the arguments over the abrasive birds being aggravated by a number of abrasive birders. Charles Pickering, at the Boston Society of Natural History, was in 1867 one of the first to sound an alarm over the persecution of native birds by these invaders. A scholarly man, he went back into history and found that "when writing was invented the sparrow was selected for the hieroglyphic character signifying enemy." In the early 1800s, a French naturalist had stated that "sparrows are impudent parasites."

Such warnings were ignored in America. In 1868, Dr. Thomas Mayo Brewer wrote that the house sparrow "will ere long become one of our most common and familiar favorites." The sparrow could have had no more respected ally. Dr. Brewer, who published books and wrote editorials for a Whig newspaper, was a co-author of the first modern catalog of American birds and an authority frequently cited by his friend and admirer, the great artist John James Audubon. Brewer aroused a formidable adversary, Dr. Elliott Coues, whose *Key to North American Birds* is one of the two or three most important works of

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American ornithology. A contentious and charming man, Dr. Coues led a life of inexplicable contradictions, making close friends and then turning bitterly against them, collaborating brilliantly with other scientists and then calling them "cads" and "liars" when they disagreed with him, demanding hard proof in all scientific matters yet solemnly describing the ghosts that came to call on him during his afternoon naps—he had seen, heard, touched and smelled the ghosts, he said, and frequently talked with them.

As a promising young ornithologist Coues had looked on Dr. Brewer as a wise ally. Now he broke with him over the English sparrow, declaring that it was becoming a peril to native birds, and people would soon have to "take measures to get rid of the bird." Dr. Brewer expressed pointed surprise that "a naturalist generally so well informed as Dr. Coues" could admit "that he was prejudiced against the sparrow from the beginning." Dr. Coues would not retreat before "the sturdy little foreign vulgarians," which he came to look on as simply "animated manure machines" and nuisances "without a redeeming quality." Brewer, pressing the attack, suggested that Coues was being mendacious for holding that "a lie well stuck to" was "as good as truth."

Others now entered the fray. Henry Ward Beecher, the most renowned of American preachers, accused Coues of "treason" for having incited riots against the sparrow and prophesied an awful avian fate for him. "No raven shall ever bring him meat," Beecher thundered. "His name shall be known in the kingdom of birds as a public foe . . . he shall be surrounded by swarms of sparrows, darkening the sun. . . . Each bird shall nip him . . . until the last thread of his garment and the last hair of his head shall be borne away in triumph to line the nest in which a valiant sparrow shall give its now native country another brood of these vigorous workers." Henry

On their way west, sparrows often hitched rides on railroad grain cars, taking up residence wherever trainmen shooed them out.

Bergh, founder of the American Society for the Prevention of Cruelty to Animals, volleyed epithets at Coues, calling him "a murderer."

Negotiations were begun to decide the issue through face-to-face combat between Brewer and Coues, but when the Nuttall Ornithological Club of Boston held a meeting for the combatants, neither showed up. However, Theodore Roosevelt, at that time a student of natural history at Harvard, reported that in Egypt, where he had spent some time with his family, he had seen farmers shooting the sparrows because they were feeding in the grainfields. He himself had observed them, in and around New York, assaulting song sparrows and snowbirds, driving purple martins from their homes and once actually mobbing and killing a yellow-bellied woodpecker (sapsucker). Farmers in the Hudson River Valley, he added, shot them for eating the buds on their fruit trees. From a distance, Dr. Brewer counterattacked, sneering at his young adversary. A letter apparently written by the doctor referred to Roosevelt as "sophomoric" (literally true, since Roosevelt was in his second year at college) and accused him of drawing "upon a vivid imagination for his facts. He tells the world when he was in Egypt—at what age he does not say. . . ." Though Roosevelt was only 12 when there, he was already an accomplished field naturalist.

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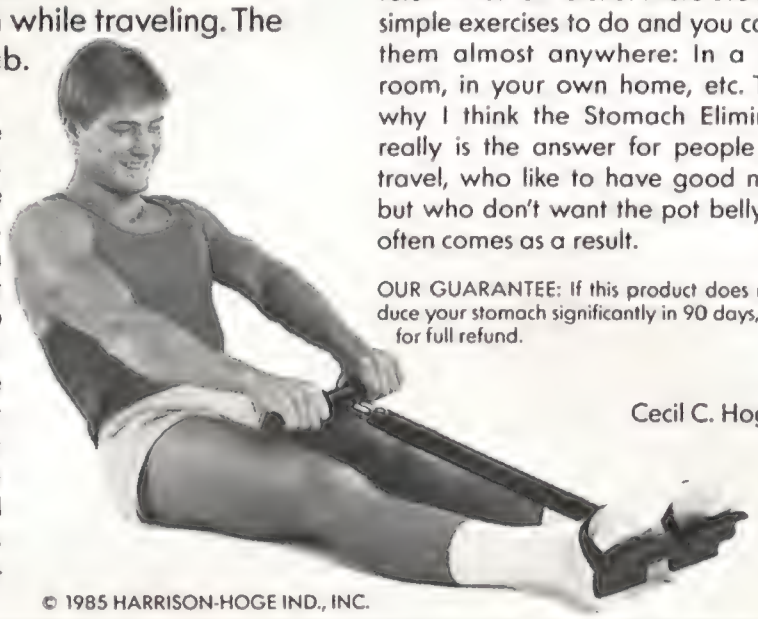

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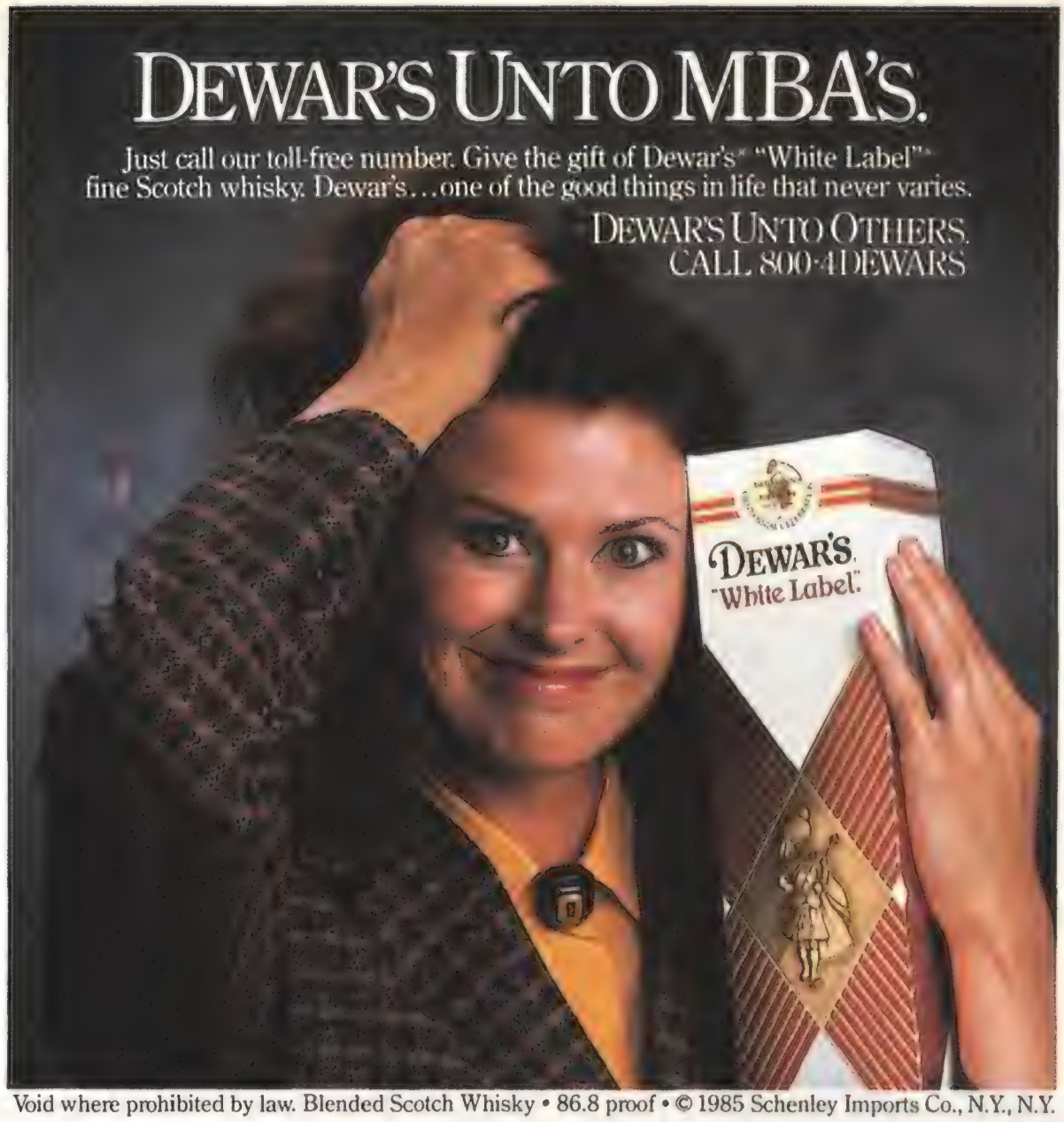
birds, were attracted to the Boston Common by the plentiful supply of sparrows and began to decimate the population, the misguided mayor went to the rescue by sending a park employee out to shoot the shrikes. Some years later, the American Society of Bird Restorers, declaring that the sparrow had evicted native American birds from the Common and the Public Gardens, demanded that their "avian ghettos" be destroyed. The current mayor dispatched squads of men who pulled down 4,000 nests, broke thousands of eggs and blocked 5,000 nesting holes. But when the Humane Society protested, the mayor called his men off.

Meanwhile, unemotional attempts to bring some kind of settlement were launched. In 1883, the American Ornithologists' Union (AOU), a newly formed organization made up of the most eminent men in the field, resolved at its first meeting to decide "the eligibility or ineligibility of the European House Sparrow in America," i.e., should the sparrow be granted the right to be called a naturalized American bird? Or, the resolution implied, should it be classed as a foreign invader? And in 1885, the same year that the AOU reported its findings, the whole country was drawn into the conflict. The U.S. Department of Agriculture was assigned to discover whether the bird was a bane or a benefit to American farmers. In a pioneering work both of organized bird watching and economic ornithology, Walter B. Barrows of the USDA sent out a survey in 1886 to nearly 5,000 people asking a detailed set of questions about the sparrow. The sparrows had become a matter of such concern and passion to Americans that he received an amazing 3,300 responses. The results of this epic bird watch were published in 1889.

From 1855 to 1870, Barrows reported, there was little animus toward the sparrow in America except from "intelligent naturalists" and from some European immigrants who warned

that the bird had been a pest back home. In some parts of Germany less than a century earlier, for example, farmers were required by law to shoot them and meet a quota of carcasses every year. Many farmers would purchase the birds from professional sparrow hunters in order to meet the quotas. Still, Barrows noted, sparrows were welcomed by many immigrants to the United States for whom their chirpings were pleasant reminders of the homeland.

The birds had been imported, however, to eat insects, not to promote nostalgia. In the 1860s and '70s, Barrows reported, there was "a veritable sparrow 'boom,' " leading groups of people to join forces and import them. City councils everywhere bought them as pest killers and the investment seemed justified since they multiplied very rapidly. Soon it was not necessary to pay for them. The sparrows would fly into railroad grain cars and ride along, eating as they went.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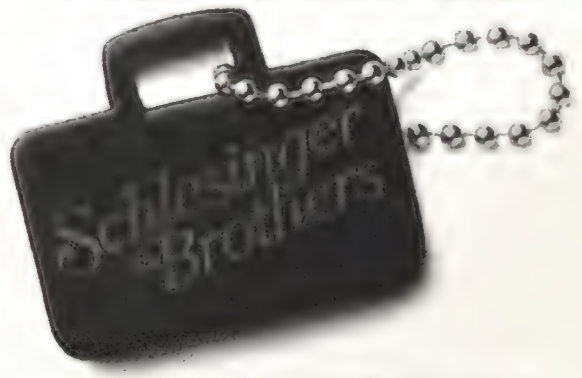

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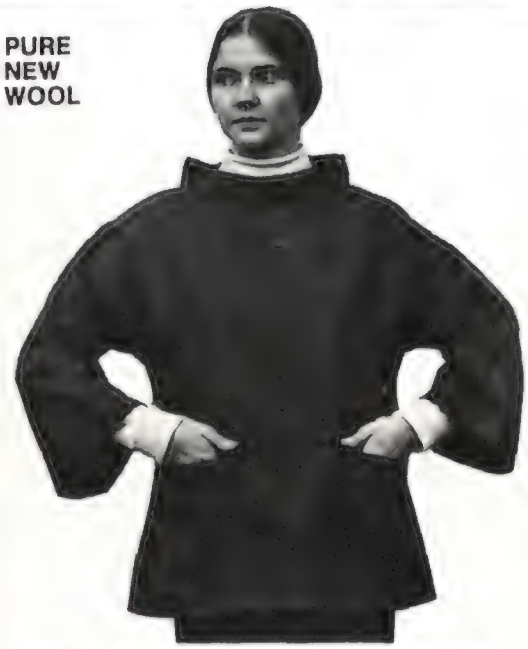

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Shooed out by trainmen, they would take up residence wherever they landed, finding their way to grainfields, feed stores and to city streets with horse droppings.

By the late 1880s, the enthusiasm for the bird had largely passed. P. Vanburgh of New Lexington, Kentucky, indignantly filling out his questionnaire, reported that sparrows pecked holes in the fruit on his apple trees. David C. Voorhees of Blawenburgh, New Jersey, complained that the bird "attacks and devours grapes greedily." They stripped H. C. Hull's farm in Meriden, Connecticut, of 100 sunflowers in two days and broke Charles Clapp's grapevines in Albion, Indiana. George T. Welch of Passaic, New Jersey, accused them of "ingratitude": after he had fed them all winter and spring, they tore the petals from his crocuses "in pure wantonness." They are "hardy, prolific, aggressive . . . possessed of more than ordinary cunning," said John F. T. Edwards of Ironton, Missouri, while J. B. Stockton in Toronto, Kansas, said that "all summer there seemed to be fresh or newly hatched birds in the nest." J. M. Fowlkes of Memphis, Tennessee, ruefully recalled that three pairs had been introduced in 1871 and by 1886 "the progeny of this stock now infest the city and the suburbs."

The enormity of the sparrows' alleged crimes against Man and nature was appalling. They were accused of robbery, homicide, civic disorder, criminal neglect, even arson. They were said to molest and murder nestlings, steal nests from wrens and swallows, take worms away from robins. Their droppings made city park benches unsittable and their nests clogged drainpipes. In Albany, New York State Entomologist J. A. Lintner saw the woodbine on buildings at the intersection of Broadway and Spencer Street alive with sparrows while the nearby elms were crawling with unmolested tussock-moth caterpillars. Near Pottsville, Pennsylvania, sparrows in the rafters of an iron mill

An Albany game dealer offered sparrows for pot pies, sold 1,700 birds in a week.

lined their nests with cotton waste, and sparks from below, landing in them, started numerous fires.

Barrows did find, among the replies to his questionnaires, a few good words for *Passer domesticus*. Judge John C. Ferriss of Nashville, Tennessee, called them "a blessing to any community that raises vegetables." Arthur Thatcher of Jerseyville, Illinois, credited them with saving his strawberries by picking white millers off the leaves, and F. T. Jenks of Barrington, New Jersey, was grateful to them for rescuing his peas from an infestation of aphids. Robert B. Roosevelt of New York City, differing with his nephew Theodore, said that while robins took his cherries, sparrows have "never been known to steal a single one." A Roosevelt neighbor, Eugene Schiefflin, encouraged the sparrows to feed with his chickens in his 29th Street backyard, cherishing them for eating "the measuring worm from which a sensitive lady shrinks in disgust." M. Kouwenhoven of Brooklyn praised the sparrows for their bravery in standing up to an unkind world where people hate them, boys stone them and cats eat them. The birds, the defense added, wear "plain

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sensible clothes and Mrs. Sparrow's husband is always good to her."

All in all, Barrows' sparrow watchers damned *Passer domesticus*. Among those who raised fruits and vegetables, for example, 422 were against the sparrow and 279 were for it, and even many of the latter had grave reservations. Answering Barrows' carefully considered questions about their attitudes toward birds, only 79 admitted that they disliked all birds, while 837 specifically disliked English sparrows.

The report accelerated the fight to get rid of the sparrows. Eight states removed them from their lists of protected birds and local protective ordinances were openly ignored. In Indianapolis, W. T. Hill trapped close to 40,000 sparrows in two years but said they were still superabundant. The

Cars did away with horse droppings, grain that made sparrows flock to city streets.

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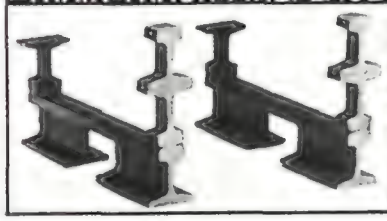

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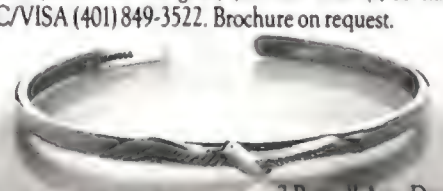

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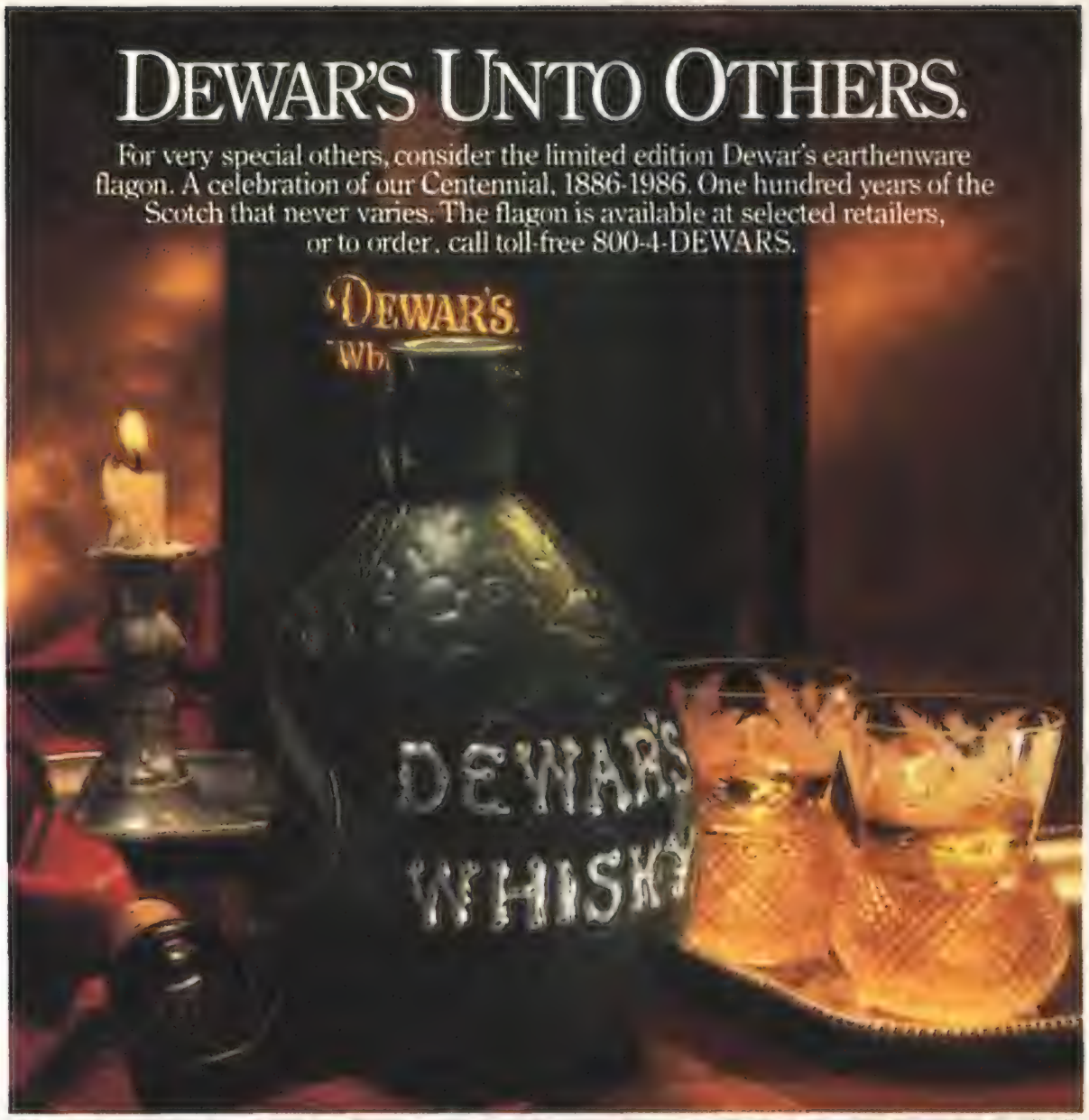
council of the town of Oregon, Missouri, provided free gunpowder to sparrow shooters. In Stoughton, Wisconsin, hoses were turned on their nests. In Painted Post, New York, A. H. Wood fed a few of them strychnine and in Providence, Rhode Island, Eli Blake did his bit by taking 995 eggs from the ivy on St. Stephen's Church. In Albany, New York, a game dealer served both the public good and his own pocketbook by selling sparrows at 25 cents a dozen: "They make excellent pot pies," the *Albany Express* noted. "The flavor is said to be somewhat like that of reed-birds and much superior to quail." He sold 1,700 in one week. The USDA recommended their use as food for two reasons—because of "their nutritious value and as a means of reducing their numbers."

The state of Ohio offered a bounty for the birds, ten cents a dozen, but gave up after a while when someone calculated how much the scheme was likely to cost. Some 40 million birds might be killed the first year, it was estimated, at the modest cost of some $400,000. However, success would boost the bill. As the projected decrease in population made killing less easy, hunters would want more pay per bird and the state might face a total bill of some $11 million with the prospect that, even if most of Ohio's sparrows were exterminated, new generations would keep flying in over the border. Bermuda, a territory much easier to defend, had tried the bounty system and, after spending £800, had given it up as a lost cause. Few places seem to have succeeded in getting rid of the birds, among them the Isle of May off Scotland's coast, where the one nesting pair died after the resident horse left for the winter, and Lundy Island in the Bristol Channel, where the sparrows were exterminated during World War II. Natural disasters were no help. In the great New York blizzard of 1888, thousands of sparrows froze or starved to death with only a temporary effect on the population. After the San Francisco earth-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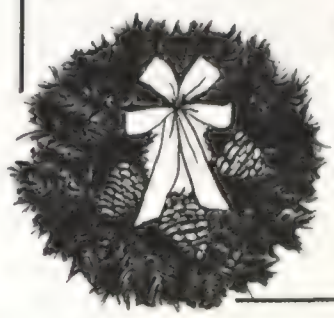

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quake and fire of 1906 they were observed to be "rebuilding as assiduously as ever."

If insults could kill, the bird would long since have been exterminated. Few birds have achieved such a bad name among birders. Leon Dawson, a leading California ornithologist, declared that "without question the most deplorable event in the history of ornithology was the introduction of the English sparrow." One bird watcher, after observing a pair copulate 14 times in succession, with five-second pauses between the act, accused them of being immorally oversexed, obsessed by "*furor amatorius*, the male suffering from satyriasis and the female from nymphomania." Bird journals, dedicated to loving all feathered creatures, fulminated that the sparrow's "introduction was an overwhelming catastrophe . . . as if some foul odor had forever defiled the fragrance of our fields and woods."

In all the hullabaloo, there were a few who kept birding's faith: that if Man ever has trouble with a bird it is Man's fault, not the bird's. The English sparrow simply did what any normal bird would do—try to establish itself in a new habitat. Since it has, among other assets, a bigger brain per body-ounce than most birds, the sparrow is more efficient at adapting and establishing itself. Introducing any alien species is always a risky matter. The starling brought into the United States from England, like the sparrow, to destroy insects, became as big a pest. Asian birds like the mynah, imported into Hawaii, have almost driven out a number of native species. Some introductions have been benign. The pheasant, for example, introduced from China via Hungary, has become an agreeable resident.

The established populations of the English sparrow in the United States, meanwhile, have been stabilized, not by insult or mortal injury but largely by the coming of the automobile. The easy pickings from horse droppings have vanished, the city feed-and-grain

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stores have gone and the population explosions have ceased. The sparrow's dominance in Eastern cities has been challenged by an immigrant from the American West, the house finch, which has settled in the East and proved aggressive enough to drive sparrows from some of their urban strongholds. It is prettier than *Passer domesticus*, has a sweeter song and gets along better with most other birds.

The wars against the sparrow have moved to far-off places. New Zealand, which first welcomed them in the 1860s, set bounties on them 20 years later, with the usual lack of success. In the 1950s, China launched its own sparrow war. Children, students and soldiers beat gongs and fired guns day and night without stop to allow the sparrows no rest. After three days, more than 100,000 birds had fallen from exhaustion and were disposed of—but others took their place.

The feuds stirred up in America during the Great English Sparrow War lasted for decades. Elliott Coues would not let even Thomas Brewer's ghost rest. Long after the old birder had died, Coues was still writing that Brewer had "made a fool of himself about the sparrow." "The harm he did," Coues wrote elsewhere, "was incalculable and his name deserves to be stigmatized as long as there is a Sparrow left in the United States to shriek 'Brewer! Brewer! Brewer!' "

Today, however, the wounds of war seem healed and the enemy, as in so many conflicts, has been peacefully assimilated. The AOU, having considered the eligibility of *Passer domesticus*, first concluded that it could not be admitted as an American species and should not appear as such in the official nomenclature. But, as might be expected, the sparrow survived this excommunication. It eased its way into the AOU's "Check List of North American Birds," the authorized avian roster, as an "introduced" species, a kind of accepted alien. In 1931, almost half a century after the question was raised, it was admitted to the check list without any qualification, eligible long after the fury of battle had passed, to be called an American bird. And if this is a measure of victory, the English sparrow had won its war.

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By Doug Stewart

Wheels go round and round, but always run down

To scientists' disdain, many inventors still quest for the grail of perpetual motion

Boston Museum of Science's spinning bike wheel is a perpetual-motion fake, and the first person to explain what powers it wins $1,000.

In a cluttered cinder-block workshop somewhere on the Gulf Coast of Florida (he prefers its exact location remain unpublicized), a 76-year-old inventor named, aptly enough, Edison Notestein is showing me a device he's built as part of his yet unsuccessful quest to construct a perpetual-motion machine. Perpetual-motion machines produce more energy than they take in and can therefore run without fuel until they wear out. Any physicist will tell you that's impossible, but Ed Notestein says he knows a few things the physicists don't.

"There are ways you can cheat on almost anything," he tells me as he nudges an eight-spoked plastic wheel into motion with his finger. The spokes are hollow, and each can accommodate a small steel ball that rolls back and forth inside as the wheel spins on its stand like a miniature Ferris wheel (p. 196).

"Over here on the left side, the balls roll out toward the rim," he says. "They come down around here, then this cam"—a plastic guardrail of sorts that curves up toward the wheel's center on the right side—"pushes them toward the center." We watch as the wheel spins and the tiny balls click back and forth, out on the way down, in on the way up. "So it's always heavier on the left side," he explains. He gives the wheel another boost with his finger. "Always heavy."

The idea seems logical enough: each spoke acts like a children's seesaw with the child on the left sitting farther from the fulcrum than the child on the right. This particular machine has a few bugs in it, unfortunately, which is why Notestein has to give the wheel a push now and then to demonstrate the principle. Notestein thinks the problem is in the shape of the cam. He also suspects an odd number of spokes might make more sense. "If I can once get it to run, then I can start refining it," he says. He'd probably use the device to run a fan or maybe a refrigeration pump. I ask if perhaps the cam isn't acting as a brake on the wheel each time it forces the ball in toward the hub, but he considers that unlikely.

The quest to build a working model of a perpetual-motion machine is generally viewed as a quaintly archaic activity, like devising a method to turn lead into gold or searching for

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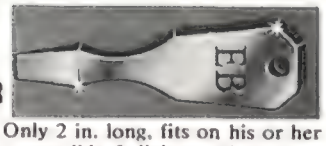

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the Northwest Passage. When I placed a classified ad inquiring about perpetual-motion devices in the "Inventions Wanted" section of both *Popular Science* and *Popular Mechanics,* however, I soon realized I'd tapped into a dizzying, coast-to-coast subculture of enthusiastic and, as a rule, highly secretive inventors. Ed Notestein was just one of 43 people who called to tell me about their designs. A number of others called with tips, several more called to find out what I knew, and two people called to tell me about exercise machines they'd invented.

A maintenance man for a winery in central California told me an overbalancing wheel he'd built picked up so much speed on its own that one of the weights went flying through a window. An alternative-energy entrepreneur in Arkansas claimed he'd built a successful perpetual-motion machine using magnets and a lazy Susan—"No professor can tell me that it didn't work," he said. On a bigger scale, a father-son team in Missouri, both machinists, are refining a motor powered by permanent magnets. All they need now, the son told me, is something to block the magnetic fields during a portion of each cycle so the engine would keep running. He figured $400 worth of perlite would do the trick. A lab worker in San Diego said the only reason he hadn't built a working model of the device he had in mind was that it would be 12 feet tall and would clutter up his backyard. "Besides," he said, "I know it will work, so why should I bother?"

A hero and inspiration to many of these inventors is Joseph Newman of Lucedale, Mississippi. A self-taught inventor and holder of patents for plastic-covered barbells and automobile-windshield rain deflectors for driving, he is the brains behind the Energy Machine of Joseph Newman (p. 197). Its grandest incarnation is a

Mr. Stewart wrote on humankind's perpetual search for comfortable chairs in SMITHSONIAN, *April 1986.*

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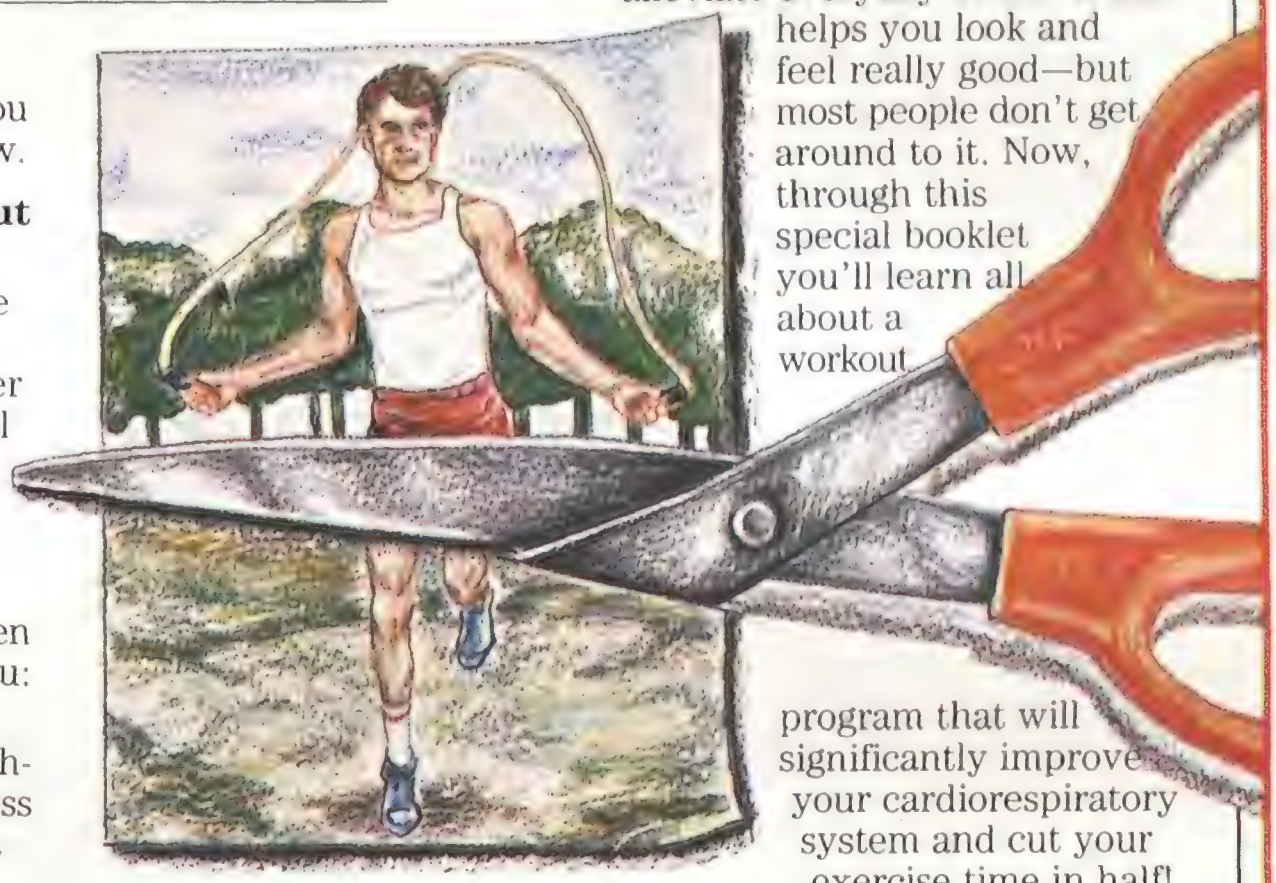

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Edison Notestein says his variations on an overbalanced wheel are "perceptual-motion" machines because they "just about" keep going.

200-pound fiberglass tub containing 700 pounds of rotating magnets and more than 25 miles of copper coils. Newman says his machine pumps out more electricity than it draws and will thus render all current conventional sources of power obsolete. He predicts it "will change the world drastically for the good of humanity, more so than any invention before this time." After the U.S. Patent Office finally dismissed the device in 1982 as just another perpetual-motion machine, Newman sued, claiming the patent examiner never even finished reading the 30-page technical description he wrote.

Newman has since waged a two-pronged attack, both legal and theatrical. In places like the Louisiana Superdome, he has staged a series of well-attended exhibitions. Surrounded by signs reading "Danger: High Voltage," the device would make a bank of light bulbs glow, sometimes running a portable fan or a water pump to boot. As a "catalyst" to help things along, Newman would first hook it up to an array of 1,000 nine-volt batteries.

Whether the Newman Energy Generator has ever put out more energy than it takes in is a matter of some dispute. Newman claims the machine is actually converting mass to energy but much more efficiently than nuclear reactors do and without all that worrisome radioactivity. The process, he says, involves a magnetic field consisting of clouds of gyroscopic particles that move and spin at the speed

Give us two weeks and

of light, particles that have eluded scientists until now. In his enthusiasm, Newman has even named his son Gyromas, after his discovery. Last June, the National Bureau of Standards finally tested the device. Its finding: the machine is battery-operated.

Brandishing a handful of testimonials from more than 30 engineers and scientists who say his generator has merit, Newman is planning an appeal. Most scientists, however, seem unimpressed with the whole affair. ("Science is just a tool," says one physicist. "Some people use it well. Some people don't.") The skeptics suspect Newman and his backers haven't learned to measure pulsed electrical power correctly. They also wonder where the nuclear by-products are. Newman, for his part, says he knows he's got the mechanics and the physical basis right. He'll let researchers of the future work out the mathematics.

The idea that physics is something for physicists to worry about is a common notion among perpetual motion-

In Energy Machine of Joseph Newman, red bundles containing wire-wrapped magnetic rods spin in tub, generating power for bulbs.

ists, who as a rule are nonacademic types. As Edison Notestein told me the first time we spoke, "You read in scientific magazines that perpetual motion is an absolute impossibility, that it defies all the laws of nature, but I'm not real sure that we've discovered all those laws yet. It used to be that when you threw a stone up in the air, it would fall down. But we throw satellites up now, and they stay up there. It all just depends on how you do it."

Notestein himself is a retired ma-

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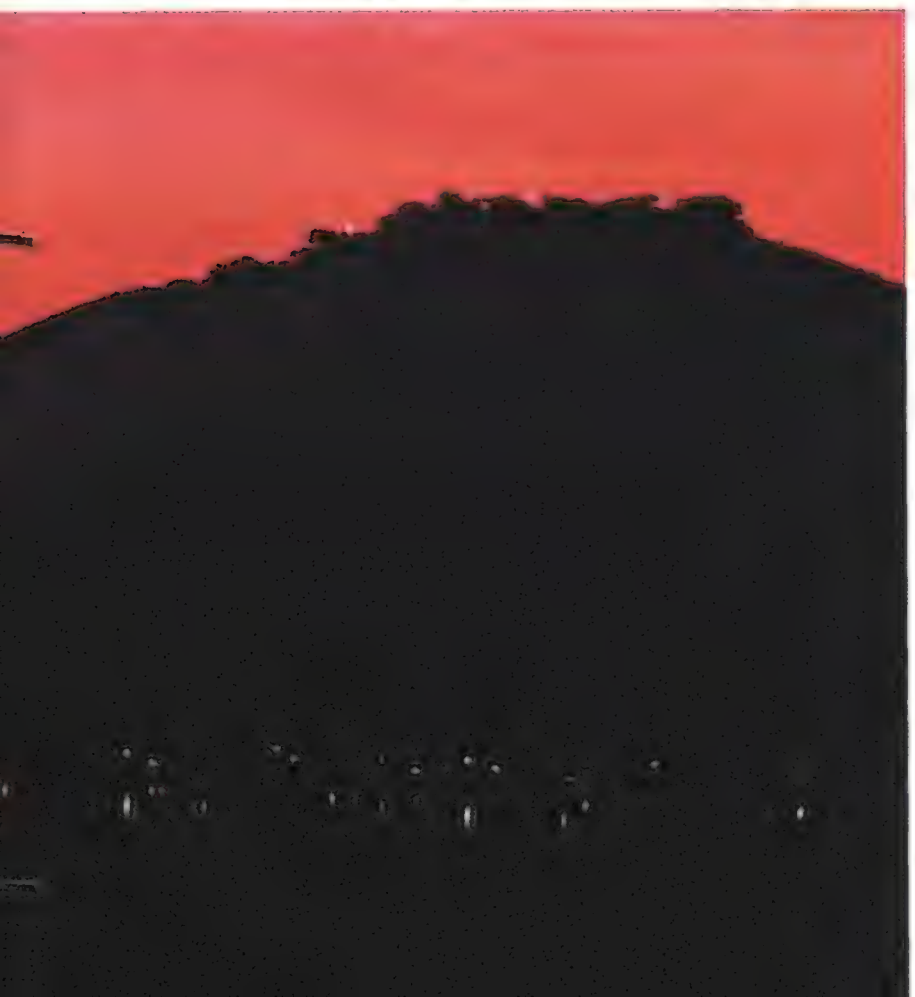

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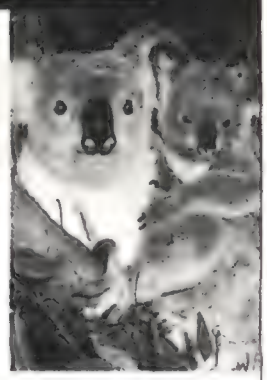

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chinist, a bald, large-boned man with powerful hands, a Jimmy Stewart drawl, and unwavering confidence that he can build anything he sets his mind to. He's accustomed to taking the designs of better-educated people and improving them to make sure they'll work. He views friction not as a fundamental flaw that brings all his gadgets to an inevitable halt, but as a detail to be finessed, just as a racing mechanic coaxes a little more juice out of a high-performance engine in order to beat the competition.

Notestein devotes a good chunk of his spare time and disposable income to his obsession. His devices, with their brass weights and Teflon rollers, are tightly constructed and satisfyingly heavy. It helps their appearance that none shows signs of wear.

"Now, my thinking here," he says, pulling a large metal structure from under a counter in his workshop, "was that you can slide two magnets apart sideways with less energy than it takes to pull them directly apart." He starts pumping a lever gently up and down like a bellows handle.

This one looks plausible, I have to admit. A magnet is fixed to the top of the lever. Two other magnets, one positioned to pull, the other to push, are fastened to the underside of a gallows-shaped crossbar above. The magnet on the lever rises toward the attracting magnet, but the motion of the lever itself causes the gallows to slide back a few inches. That pulls the attracting magnet on the gallows out of range and the repelling magnet into range. The lower magnet is now pushed and the lever starts down again to complete the cycle.

That's the theory, at any rate. As soon as Notestein stops pumping the lever with his hand, the contraption is as still as a paperweight. Notestein doesn't seem bothered—there are plenty of other schemes he's pursuing. "Here's another one," he says, reaching for what appears to be a two-vaned windmill. "This one just about kept going." As my eyes grow accus-

tomed to the dimness of the workroom, I realize that among the toolboxes and jars of ball bearings on the oily metal shelves around us sit more than 20 cannibalized or half-finished machines: two-geared yo-yos and pivoting cake tins and variations on the variations.

"On all these gadgets, there isn't any reason in the world why they shouldn't keep running," Notestein admits. His own son, an MIT graduate, has told him he's wasting his time. "But when I get it going," he says, starting another of his overbalancing wheels clicking, "it's just so damn near perfect! It just almost kicks across there"—his voice rises to an emphatic falsetto—"it just needs the tiniest push. I've never been quite successful, but I'm getting awful close."

Although a few perpetual motionists dream of scaling up their devices to power-plant size, providing free energy for all, most, like Notestein, have a humbler vision of fuel-free electrical generators chugging away in their basements, running the dishwasher and lighting the lights. "Laugh as you will, Rube Goldberg machines will power your future," writes John C. Bedini in "Bedini's Free Energy Generator," one of many low-budget pamphlets and flyers that circulate within the subculture.

Perpetual-motion devotees tend to question the motives of the skeptics who dismiss them. "Let's face it, this is not wanted," a tugboat engineer in Maryland told me, referring to a self-driven motor made from old lawnmower parts that he's been tinkering with in his basement for several years. "Could you see this thing sitting down there going 'cluck, cluck, cluck, cluck, cluck' day and night, and I'm not paying the power company anything? They'd have a fit."

The consensus among the inventors I spoke with is that scientists are equally uncomfortable with the idea of a perpetual-motion machine ever working. "Scientists have a preconceived notion of the world," said a man in New Brunswick who's developed a belted wheel driven entirely by its own springs. "But they're not true inventors, eh? They're scientists. When Galileo built the first telescope, a lot of people wouldn't even look through it." In short, science consists of laws; breaking them is illegal.

That's not quite the way scientists themselves look at the situation, of course. The scientific method is based on evidence, and evidence of perpetual-motion devices is elusive indeed.

"I would love to see one!" says Al Hibbs, a theoretical physicist at NASA's Jet Propulsion Lab (JPL) near Pasadena and an occasional lecturer in physics at Caltech. "God, what a revolution in physics! We'd throw out the first law of thermodynamics. It would be greater than Einstein." Hibbs, 61, is a specialist in the mathematics of tracking spacecraft, but he has a strong side interest in miscellaneous pseudosciences (p. 208). A self-proclaimed skeptic, Hibbs has hung a cuckoo clock on the wall of his

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To Hibbs, it's reality, not the so-called scientific establishment, that stands in the way of successful perpetual-motion machines. Those working on them, he says, always promise their machines will work as soon as they get rid of that last little bit of friction. Either that, he says, or they claim their machines already work but "they won't let anyone with a screwdriver near them to see what's inside the works."

Hibbs is a casually dressed man with half-glasses and a shirt pocket crammed with pens. He warms to the subject as we talk, putting his feet up on the edge of his desk. "Most perpetual-motion designers haven't done their homework," he observes. "They don't realize how often their inventions have been invented before. After a while scientists do become closed-minded about it all—why should they keep testing these things?"

All perpetual-motion machines, Al Hibbs explains, violate either the first or the second law of thermodynamics. The first law states that energy can be neither created nor destroyed. If a machine is to produce energy, say, in the form of mechanical work, then some other form of energy—gasoline, wind, electricity, a hand turning a crank—must be introduced first. Gravity, magnets and springs simply aren't enough. Although gravity is what pulls water over a waterfall to spin a turbine, solar energy is required to bring the water vapor back upstream again so the process can continue. In much the same way, when a magnet attracts a piece of iron, an equal

Edison Notestein's devices use various principles. Clockwise from the top left: weights circle cam within groove; magnets attract, repel; springs run roller and cam; center changes as the weights revolve.

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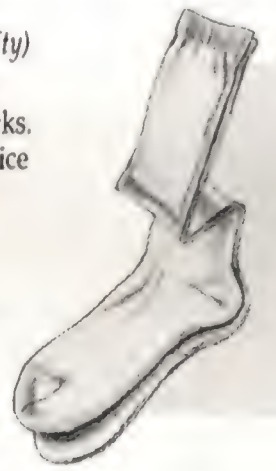

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amount of force must be applied to separate the two and complete the cycle. All of Ed Notestein's schemes, whether overbalancing wheels or magnetic levers, defy this first law.

The second law states that energy within a closed system won't run "uphill"—from a cold object to a warm one, for example. The second law closes a loophole left by the first law, namely that even if energy can't be created, perhaps it can be recaptured and reused over and over again—drawing heat out of the ground outside, for instance, in order to heat your house (the soil would get colder, the house would get warmer and the two changes would balance out). Unfortunately, energy doesn't behave that way; it has to be pushed, and pushing takes more energy. The most popular violators of the second law are batteries that drive motors that run generators that charge batteries.

"The simplest way to state the two laws," says Hibbs, "is 'You can't win, and you can't even break even.'" Hibbs points out that the laws of thermodynamics aren't sacrosanct. They're actually not laws at all but very strong theories that have withstood repeated tests. Still, thermodynamics has as strong a basis in reality as any other scientific principle. Hibbs allows that someone, someday, may unveil a perpetual-motion machine, but he isn't holding his breath.

The perpetual motionists' dismal showing so far can't be blamed on a lack of trying. Inventors have struggled to build self-propelled machinery for hundreds if not thousands of years. Though in modern times the searchers have acquired a distinctly flaky reputation, the pursuit of *perpetuum mobile* was once a respectable field of endeavor.

Medieval Islamic craftsmen tried to build clocks that would run on their own, mimicking the ceaseless motion of the sun. European millwrights, seeking to free their mills from a dependence on running water, labored on Escheresque schemes

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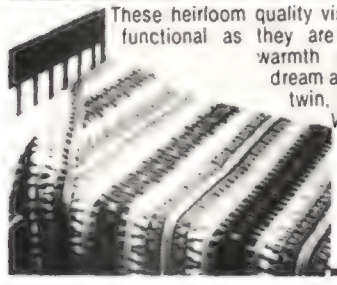

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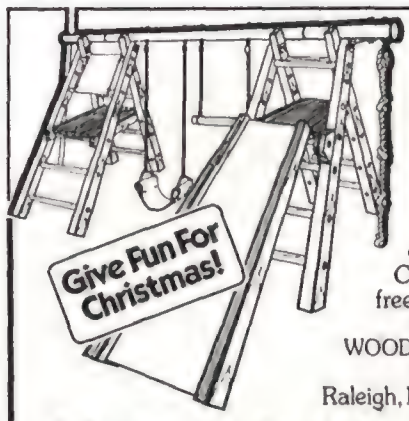

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Inventor and swindler John Keely persuaded investors that his machines ran on the "etheric force" from small amounts of water.

whereby waterwheels would not only grind grain but pump water back up to the mill pond again. There were designs for inclined chutes with magnets at the top; wheels with weights that constantly slid, rolled or sloshed forward; boats and bicycles powered by the weight of their cargo, and so on. Sadly, each had its fatal flaw, whether friction, dead spots or an unwelcome and unexpected symmetry.

The striving for hyperefficient machinery enjoyed its heyday in the late 19th century. To a public newly enthralled by the idea of invisible forces surging through wires in their walls, anything seemed possible. The U.S. and British patent offices were flooded with perpetual-motion applications. In 1870, Henry Dircks, a historian of the field, evidently lost his sense of humor when inundated with perpetual-motion designs from his readers: "The present century is rife in the reproduction of patented blundering," he

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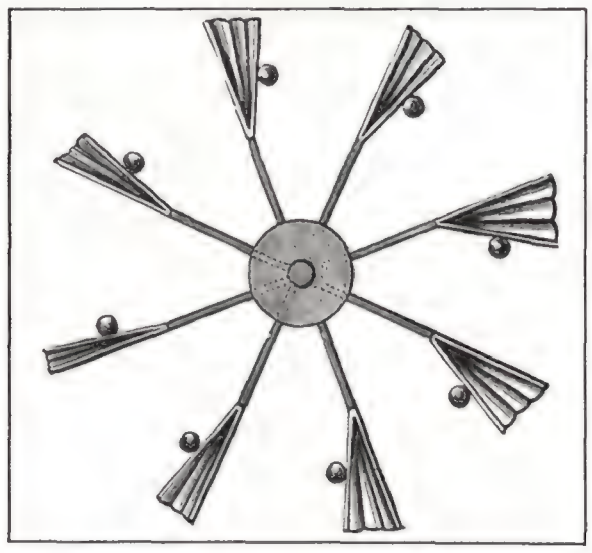
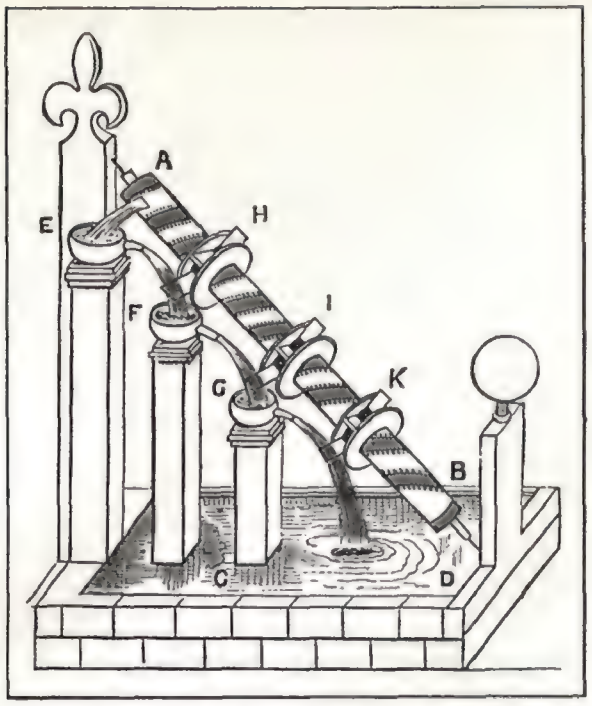
wrote, "serving only to prove the ignorance and mental imbecility of a certain class of infatuated, would-be inventors, whom no history can teach, no instruction reform, nor any amount of mechanical mishaps persuade to abandon their folly."

Some inventors found good reason not to abandon their efforts. A perpetual-motion machine, they realized, or even a close approximation of one, made a marvelous fund-raising tool. From 1874 until his death in 1898, a Philadelphia carpenter named John W. Keely (p. 203) collected millions of dollars from investors in his hydropneumatic-pulsating-vacu-engine. The motor, Keely suggested, could push a railroad train 3,000 miles on a quart of water. It never did, however, and after Keely's death, investigators found a hidden network of air pipes and belt drives connecting the demonstration machine to a small motor down in Keely's cellar.

By 1918, the U.S. Patent Office had seen enough. Henceforth, it decreed, it would no longer even consider any perpetual-motion applications. Still, the designs continued to trickle in, often slipping through disguised as battery chargers or new and improved generators (p. 207). As with the advent of electricity, the dawn of the Atomic Age set off a flurry of interest in perpetual motion. The idea of huge bursts of energy emerging from



Left bellows were to squeeze fluid through spokes, making ones opposite heavier.



Water from Archimedean screw would hit paddles, turn screw and be lifted to top.

tiny bits of mass can seem a great deal like a violation of the law of conservation of energy, the first law. Physicists respond by saying that mass and energy are fundamentally the same thing. In the perpetual-motion subculture, nonetheless, "$E=mc^2$" has become a sort of magical incantation. Today's more articulate enthusiasts describe their efforts in high-flying prose that's part *Marvel Comics*, and part Einstein-à-go-go: "a dynamic energy source entering our physical world through a location we call a magnet," "ions . . . stressed in a curved time and space relationship" or—Joe Newman's phrase—"a mechanical unification of the gravitational, electromagnetic, and nuclear fields."

"Many of these people are always saying they've discovered a principle that's 'outside of science,' " says physicist Al Seckel, "but they only say that because when scientists test their machines, they fail the test. They rationalize this failure away by saying that science, rather than their machine, is wrong and the device obviously must operate outside of science, right?" He snorts in indignation.

Seckel is the founder and executive director of the Southern California Skeptics, a group of scientists who investigate claims of the paranormal,

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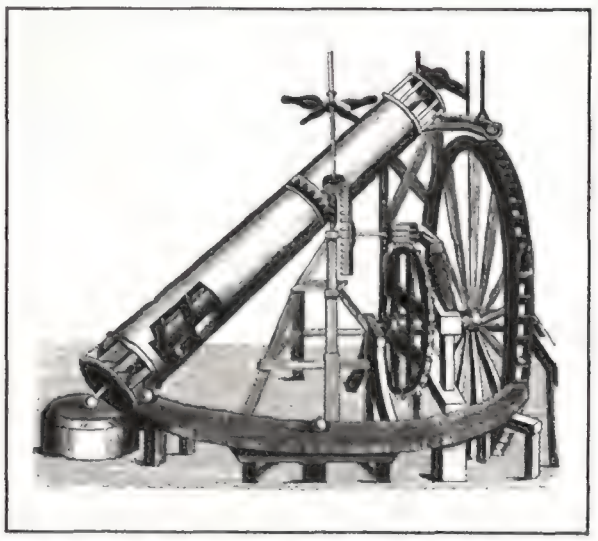
from astrology and ESP to machines that run by themselves. (JPL's Al Hibbs is the group's chairman this year.) A row of books written by skeptical people stretches across one wall of Seckel's Pasadena study, just below his cuckoo clock: *The Loch Ness Mystery Solved, The Truth About Uri Geller, Miracle Mongers and Their Methods,* among others. He is a boyish 28-year-old who himself has a considerable flair for publicity.

"We keep running across people who claim their experiments won't work if there are negative vibes around—you know, skepticism," Seckel says. "Now, I happen to know that the laws of the Universe work *even if you don't believe in them*!" For a hard-core rationalist, Seckel's manner of speaking is strangely like that of a Bible-slapping evangelist. To emphasize a point, he'll lean forward in his chair and slowly shout the last few words, then pause dramatically to let them sink in.

Seckel, Hibbs and several of their colleagues were recently called in by would-be inventors to test two different perpetual-motion devices. One was an electrical generator that multiplied whatever power it took in, according to its inventors, a trio of seemingly sincere men in their 20s. "Ever see the lab equipment in one of those old Frankenstein movies?" Seckel asks. "That's what this thing looked like. It had all sorts of wires coming out of it and rows of light



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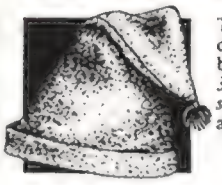

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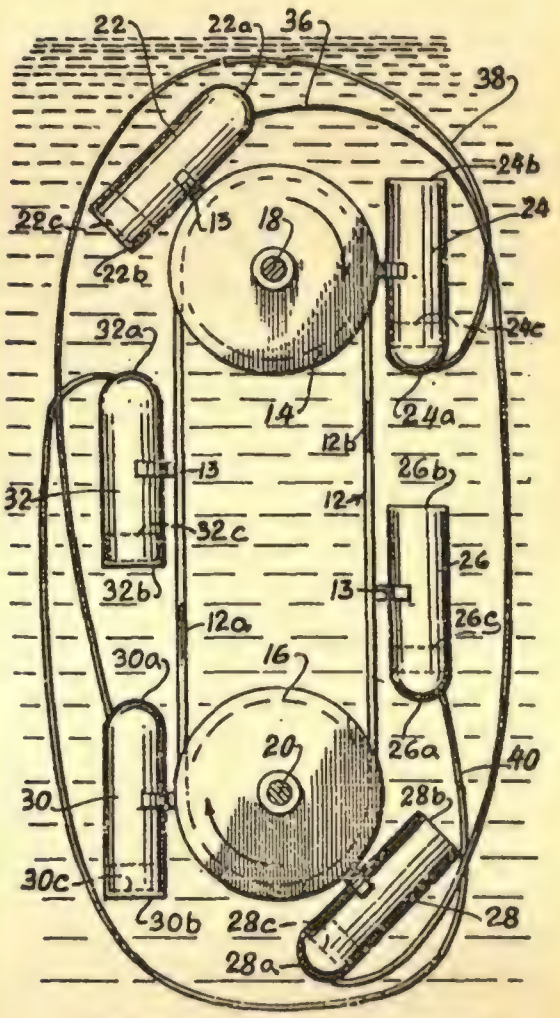

This fluid-based "power generator" somehow got past a patent officer.

bulbs. It smelled. It smoked. It looked like it was going to burn up any second." He giggles at the memory. The inventors, it turned out, had been deluding themselves by measuring direct current going in but alternating current coming out. Comparing the two numbers without a necessary conversion factor was meaningless.

The Skeptics' second perpetual-motion investigation was quicker but just as conclusive. A group of investors was set to sink $2.5 million into a mysterious "energy augmentor," but their lawyer wanted an expert opinion first. The scientists, the backers and the inventor all met for a demonstration at a parking lot south of Los Angeles. Seeing the crowd, the inventor never took the machine out of the crate in the back of his truck.

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"The only smoke was from the inventor's tires as he sped out of there," says Seckel. "Afterwards, I said to the main investor, 'How long did you see this thing run?' 'Twenty minutes.' 'What was its power source?' 'It was plugged into a wall.' 'Well, if there was really more energy out than energy in, why didn't he just plug it into itself?' He said, 'You know, I never thought of that.'" Seckel jumps to his feet and concludes from a gleeful crouch: "For $2.5 million, *I would have thought of that!*"

Seckel keeps a thick file on the various perpetual-motion schemes that have made headlines in recent years, a disproportionate number of them in the Los Angeles area. One local inventor, after being acquitted of 51 counts of fraud and conspiracy two years ago for selling shares in a gravity generator, announced he was going right back into business. "I'm sure the next 12 investors in that machine will be the jurors," a police investigator was quoted as saying.

Perpetual-motion inventors themselves, in fact, often seem as gullible as their backers. The beauty of an overbalancing wheel, or a sealed box containing a 15-watt light bulb surrounded by solar collectors, or a motor that keeps itself going by boiling water with its own exhaust pipe, is its almost breathtaking simplicity. On paper, it's obvious the scheme will work. Over and over, inventors told me they had decided not to build a working model because anyone who so much as glanced at it could go home and copy it. As often as not, the inventor's chief concern is how to keep all that multiplying energy under control once the machine takes off. "I'm messing around with something no one's ever done before," a worried-sounding man in Kentucky told me one night. "There's just a chance I could set off a small nuclear explosion."

Nothing—not patent regulations, not history books and certainly not the laws of physics—discourages the hard-core perpetual-motion inventor. "Some professors are so smart, they can't figure these things out," summed up an auto mechanic in New England who's planning to market a permanent-magnet motor as soon as he finishes connecting all the parts. "It's too simple for them."

Skeptics Al Hibbs (left) and Al Seckel know that friction is on their side when overbalanced wheel refuses to run by itself.

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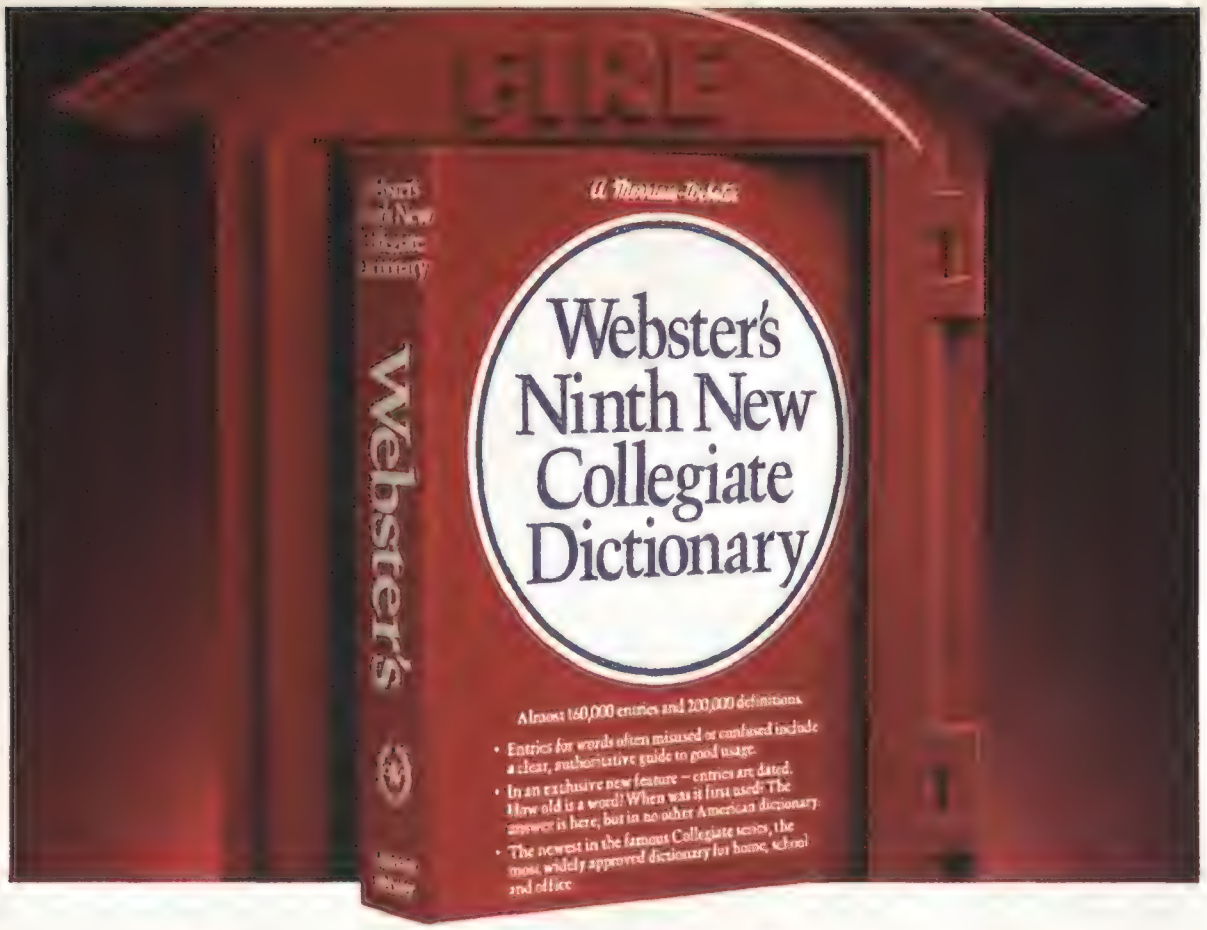
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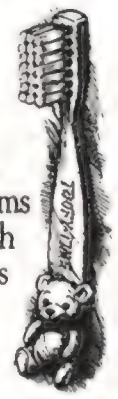

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Book reviews

Paintings of the British Social Scene from Hogarth to Sickert
E. D. H. Johnson
Rizzoli, $35

This volume began as a series of lectures at the Morgan Library in 1979 and now has been expanded into a short history of a subject flexible enough to encompass a variety of stylistic, esthetic and social impulses. In his introduction, E. D. H. Johnson comments on Hogarth's *O the Roast Beef of Old England, or The Gate of Calais*: "through scenes of this sort the artist was inaugurating a native tradition of genre painting which retained its popularity for nearly two centuries." The author, who has written as much on literature as he has on art, goes on to compare Hogarth's painting with the English novel, taking shape under Fielding: "richness of narrative texture, full-blooded characterization and a sharp eye for local detail."

Necessarily much of the work is given over to genre painting, whether it be satiric and moralistic like Hogarth's, or sentimentally anecdotal as in the late 18th century, or naturalistic in its social awareness like that of Sir Luke Fildes, or pretty after the fashion of the later Millais. Johnson opens up his study to take in portraits and family groups when there is an emphasis on activities that transcend static posing, and landscapes when, like those of Gainsborough, they are well peopled. The only unvarying demand on the paintings is, as the title suggests, that they depict or reflect "the British Social Scene."

On the simplest level, the paintings can serve as documentary evidence for the historian who wants to know how people worked and played, what they

wore, with whom they associated. Yet genre paintings, like plays, are more than the sum of their props. They can be—should be—read for the narrative, implicit or explicit, and what it tells about parents and children, husbands and wives, the loved and the unloved, the rich and the poor. A painting like William Powell Frith's *Derby Day* is fascinating not simply as a panoramic view of people gathered for the races, but for the individual characters—the overconfident farmer, the hungry child, the supercilious ladies' man—and the plots their presence suggests. As Frith's storytelling work indicates, the genre painters are not simply documentarians. What they present is the social scene modified to fit the narrative, the moral, the social criticism. Sometimes, as in Francis Wheatley's *The Cries of London,* recognizable street types are cleaned up to fit the sensibilities of the audience. Of Wheatley's rural paintings, Johnson says both that they are "based on observation of typical activities of the rural populace" and that they are "the town-dweller's idealized version of the rewards and pleasures of rural living."

In trying to account for both the truth and the falsity of a painter like Wheatley, Johnson may be a touch ingenuous, but he is dealing with "social scene" in a way that reflects the most important aspect of his book. The social and moral ideas of the artists clearly contribute to the subject matter of genre painting, which also reflects the expectations of the audience and the demands of the market. Johnson's book deals not simply with the content of the paintings, but with the shift from aristocratic to middle-class patronage; with the technological changes that allowed a painting to be reproduced and reach a vast audience; with the societal attitudes that caused genre painting to vacillate between the satirical and the sentimental. Here is a history of taste as well as of art, of social as much as esthetic concerns.

In his introduction, Johnson says that "there is no necessary correlation between the documentary interest of a painting and its quality as a work of art." Even so, the strongest figures in the book are artists like Hogarth, Joseph Wright of Derby, George Morland, Wilkie, Reynolds, Gainsborough, William Mulready, Frith, Ford Madox Brown, Holman Hunt and Sickert, who engage us as artists as well as documentarians. These and their less intoxicating colleagues are present not only in Johnson's descriptions but in 215 illustrations—57 in color.

Unfortunately, for this kind of study in which detail is so important, the reproduction, particularly in black and white, is often so obscure that the reader must take on faith Johnson's description of the objects in a dark corner of the canvas or the written documents which help define character and dramatic situation.

Despite the weakness in many of the reproductions, there is much here to satisfy the eye and to tease the imagination. Johnson assumes that he is dealing with a genre invented by Hogarth and killed by photography. But the continuing attraction of the genre is evident not only in the renewed interest among scholars and collectors in paintings ignored a few years ago, but in the popularity of a contemporary painter like David Hockney.

Gerald Weales
Professor of English
University of Pennsylvania

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The Chimpanzees of Gombe: Patterns of Behavior
Jane Goodall
Harvard University Press, $30

For 26 years Jane Goodall has watched the chimpanzees of Gombe Stream in Tanzania. She may well go on doing so for another 26 years, or more. Yet this is an anniversary well worth marking in the remarkable progress of the longest continuous field study of any animal. The subject could not be a worthier one than our closest, most complicated kin, the chimpanzee. And for the science of primatology there could hardly be a more welcome milestone than this compendium of overwhelming thoroughness.

This is a work of science for scientists, one the lay reader will find daunting in substance as well as heft. *The Chimpanzees of Gombe* cannot be approached like recent popular books of primatology, read in one entranced sitting like Goodall's earlier, eloquently anecdotal *In the Shadow of Man*, or plowed through like Dian Fossey's dense, elliptical *Gorillas in the Mist*. Goodall eschews narrative here, with few exceptions, for concise description and analysis of chimpanzee physiology and behavior under nearly a score of rubrics, from feeding to hunting, aggression to friendship, mental capacities to sexual habits. The book is replete with footnotes, appendices, charts of time spent feeding and fighting, insects consumed and myriad other examples of statistical steadfastness.

Yet there remains much in *The Chimpanzees of Gombe* to recommend it to the most casual student of animal, or simply human, behavior. Chief among these attractions are the plentiful opportunities to marvel at the similarities of chimpanzees to humans. Infanticide, cannibalism, deceit, rape: Goodall has documented all among chimpanzees and recounts anecdotal examples here in forcefully spare prose. And, more often, she has witnessed tender moments of shared feeding, grooming, affection and play that parallel our own kinder selves.

The differences between Man and chimpanzee, in the context of this rich detailing of complex simian mind and society, seem small indeed. Chimps are stronger. They like sour foods more than sweet, see yellows and reds less well and hear high-pitched sounds better than we do. They smile, but not when they are happy, and grin when they are frightened. And, Goodall makes three funda-

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mental distinctions: we can speak, we can behave with great unselfishness and we are capable of greater empathy than our kissing—and killing—cousins.

The power of Goodall's own language and her other intellectual skills are evident throughout *The Chimpanzees of Gombe.* They mix potently with her empathy in a conclusion wherein she decries laboratory experimentation on chimpanzees (as "infliction of torture on innocent victims") and destruction of chimpanzee habitat that has already limited genetic exchange among surviving populations of the endangered species.

Readers of *In the Shadow of Man* will find in this book, particularly in two-dozen chimpanzee biographies in a "Who's Who" of dramatis personae, a chance to renew some empathetic, if vicarious, relationships. Here we can reminisce with Goodall about the late, benevolent leader David Greybeard, mourn the death of blub-nosed Flo and celebrate the fecund motherhood of her little Fifi and wonder at the transition of Flo's son Figan from nervous prepubescent to dominant male.

We cannot share here, however, in the turbulent events of the past 15 years in Goodall's own life: the 1975 kidnapping of student research assistants by Zairian guerrillas and subsequent limitations on Goodall's stay at Gombe, divorce from her first husband and the death of her second, separation from her son whom she sent to England for schooling at age nine. These are matters of human but not scientific interest, and as this work eloquently testifies, Goodall is very much the scientist. Gone is the girl whose childhood stuffed toy and readings of Doctor Dolittle led to the inexperienced field-worker creating congregations of chimpanzees with banana feasts.

Dr. Goodall now limits her feeding of chimpanzees and discourages their physical contact with humans. She has become what anthropologist Louis B. Leakey told her he wanted when he assigned her to her pioneering study three decades ago: "someone with a mind uncluttered and unbiased by theory who would make the study for no other reason than a real desire for knowledge."

Don Lessem
Naturalist and critic

Cézanne: A Biography
John Rewald
Abrams, $67.50

Eighty years after his death, Paul Cézanne, the French Post-Impressionist, still has his detractors as well as his admirers. For Matisse (see page 80 of this issue) he was "the father of us all," and for Picasso "a mother who protects her children." Yet, when I showed a slide of a Cézanne still life in an art-appreciation class on Long Island last year, one of the brightest students erupted in protest against its "crudity." When I told this to a fellow teacher at a Manhattan college, where the students are presumably more sophisticated, she replied, "Everybody has problems with Cézanne. He is so subtle."

Nevertheless, the number of Cézanne's admirers has grown enormously, and those who attack him sound more than ever like the now largely forgotten French Academicians who refused entry to his pictures (and those of

the Impressionists) for the official Salon exhibitions in the 1860s and 1870s.

Many of these admirers will welcome John Rewald's book, which tells the tale of the artist's entire life. Here we have Cézanne as a boy in the sleepy southern town of Aix-en-Provence, with his childhood friend, the future writer Émile Zola. Cézanne's banker father wanted his son to become a lawyer, but by the time young Paul was in his 20s, he was already in Paris, perfecting his draftsmanship and meeting those other young painters who themselves would later become famous. Rewald describes the jousts with the Salon juries, to whom Cézanne seems to have sent his most controversial pictures (including one which may or may not depict his friend Achille Empéraire seated on a *chaise percée*—or commode). We are told about the notorious first Impressionist exhibition of 1874, in which Cézanne participated and to which crowds came to jeer.

We learn how, gradually, over the years, Cézanne became more and more attracted to his native town of Aix. There, despite his growing fame in Paris and among younger artists, he tried again and again in his later years to capture in paint the "sensations" inspired by views of the Bibémus quarry, the Château Noir (a rundown pseudo-Gothic mansion), his monumental still lifes, his largely imaginary scenes of nude women bathing and, above all, the majestic Mont Sainte-Victoire.

Rewald tells us about the long friendship with Zola and its eventual breakup (though his explanation for the rift is more simplistic than that of other Cézanne biographers). We read, too, of Hortense Fiquet, the model who became Cézanne's mistress when she was 19, bore him a son, Paul (whom he deeply loved), and who appears to have turned into a distinct nuisance after he married her (he referred to her as "the Ball").

The initial version of this text was published in 1936 in French as Rewald's doctoral thesis for the Sorbonne. An expanded version appeared in English in 1948, shortly after Rewald had achieved fame for his excellent and still-in-print *History of Impressionism* (1946). The new book largely follows the 1948 text, with some revisions and additions. A few aspects of the original now sound a trifle musty, but on the whole the narrative wears well.

What will make this volume of interest to scholars as well as lay readers are the many photographs of Cézanne's motifs (taken in the 1930s or earlier) and the sumptuous array of paintings, drawings and watercolors—270 illustrations in all, with more than 100 paintings reproduced in color. Throughout, the emphasis has been on less familiar works which illuminate the painter's biography or methods of working. For example, the juxtaposition of three lesser-known still lifes all using almost exactly the same objects but in totally different arrangements demonstrates how Cézanne began to compose his pictures in his mind before he ever laid brush to canvas. Here was not an artist observing nature, but as Zola more truly observed, "a corner of nature seen through a temperament." And what a crusty, cantankerous, sublimely sensitive and totally individual and independent temperament it was!

Piri Halasz
New York art critic and teacher

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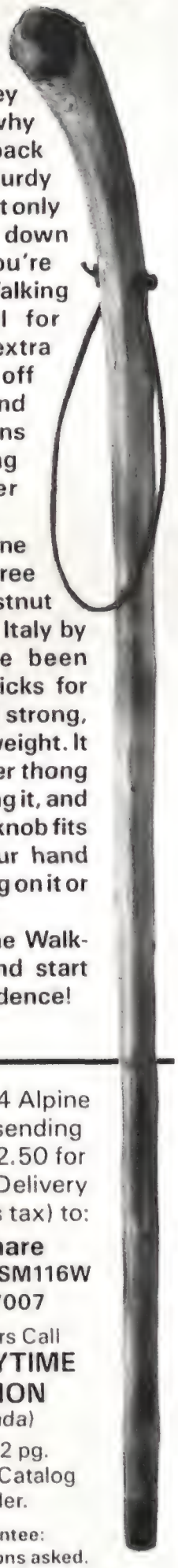

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Additional reading

Hungary (p. 52)

Hungary and the Soviet Bloc by Charles Gati, Duke University Press, 1986

The Hungarian Revolution, edited by Melvin J. Lasky, Praeger, 1957

A Short Course in the Secret War by Christopher Felix, Dutton, 1963

Uprising! by David Irving, Hodder and Stoughton (London), 1981

The Soviet Paradox by Seweryn Bialer, Knopf, 1986

Hungary and the Superpowers by Janos Radvanyi, Hoover Institution Press (Stanford University), 1972

Crime and Compromise by William Shawcross, Weidenfeld and Nicolson (London), 1974

Directory assistance (p. 66)

The Telephone Book by H.M. Boettinger, Stearn (New York), 1983

Telephone: The First Hundred Years by John Brooks, Harper & Row, 1976

The Social Impact of the Telephone, edited by Ithiel de Sola Pool, MIT Press, 1977

Engineering and Operations in the Bell System, edited by R.F. Rey, AT&T Bell Laboratories (Murray Hill, New Jersey), 1983

A History of Engineering and Science in the Bell System: Switching Technology (1925-1975), edited by G.E. Schindler jr., Bell Telephone Laboratories, 1982

The History of The Telephone by Herbert N. Casson, A.C. McClurg & Company (Chicago), 1910

Goodbye, Central; Hello, World: A Centennial History of Northwestern Bell by James Crockett Rippey, Northwestern Bell (Omaha, Nebraska), 1975

Henri Matisse (p. 80)

Henri Matisse: The Early Years in Nice 1916-1930 (exhibition catalog) by Jack Cowart, Dominique Fourcade and

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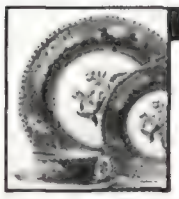

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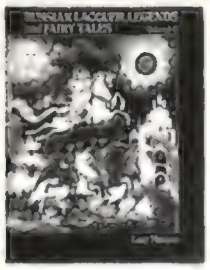

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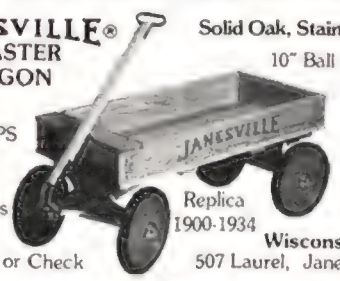

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Marla Price, National Gallery of Art, 1986

Matisse by Pierre Schneider, Rizzoli, 1986

Matisse: His Art and His Public by Alfred H. Barr jr., Museum of Modern Art, 1951

Matisse by Lawrence Gowing, Oxford University Press, 1979

Matisse on Art by Jack Flam, Phaidon, 1978

Diners (p. 94)

American DINER by Richard J. S. Gutman and Elliott Kaufman, in collaboration with David Slovic, Harper & Row, 1979

"Old-style diners sweeping nation," *Nation's RESTAURANT NEWS*, January 27, 1986

"Hey, Dottie—Diners Are Back" by Bill Barol et al., *Newsweek*, March 3, 1986

"Diners" by Nathan Cobb, *Boston Globe*, January 13, 1986

"Hash House Greek Spoken Here" by Douglas and Eve Yorke, *Yankee*, March 1977

"The Diner Puts on Airs" by Blake Ehrlich, *Saturday Evening Post*, June 19, 1948

"The Return of Hard-core Food" by Patrick Terrail and Diane K. Shah, *California*, July 1986

Hash House Lingo by Jack Smiley, Jack Smiley (Easton, Pennsylvania), 1941

Antarctica (p. 116)

South Light: A Journey to the Last Continent by Michael Parfit, Macmillan, 1985

Through the First Antarctic Night, 1898-1899 by Frederick A. Cook, Doubleday & McClure, 1900

The Seventh Continent by Deborah Shapley, Johns Hopkins Press, 1985

A Pole Apart by Philip W. Quigg, McGraw-Hill, 1983

Antarctica: Wilderness at Risk by Barney Brewster, Friends of the Earth Books (San Francisco), 1982

Martin and Osa Johnson (p. 144)

Exploring With Martin and Osa Johnson by Kenhelm W. Stott jr., Martin and Osa Johnson Safari Museum Press (Chanute, Kansas), 1978

Safari by Mariam L. Mih, Chanute Chamber of Commerce, August 1961

I Married Adventure by Osa Johnson, Lippincott, 1940

Four Years in Paradise by Osa Johnson, Lippincott, 1941

Safari. A Saga of the African Blue by Martin Johnson, Tower Books (Detroit), 1971

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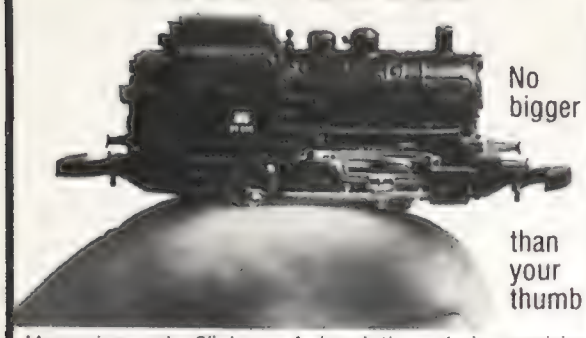

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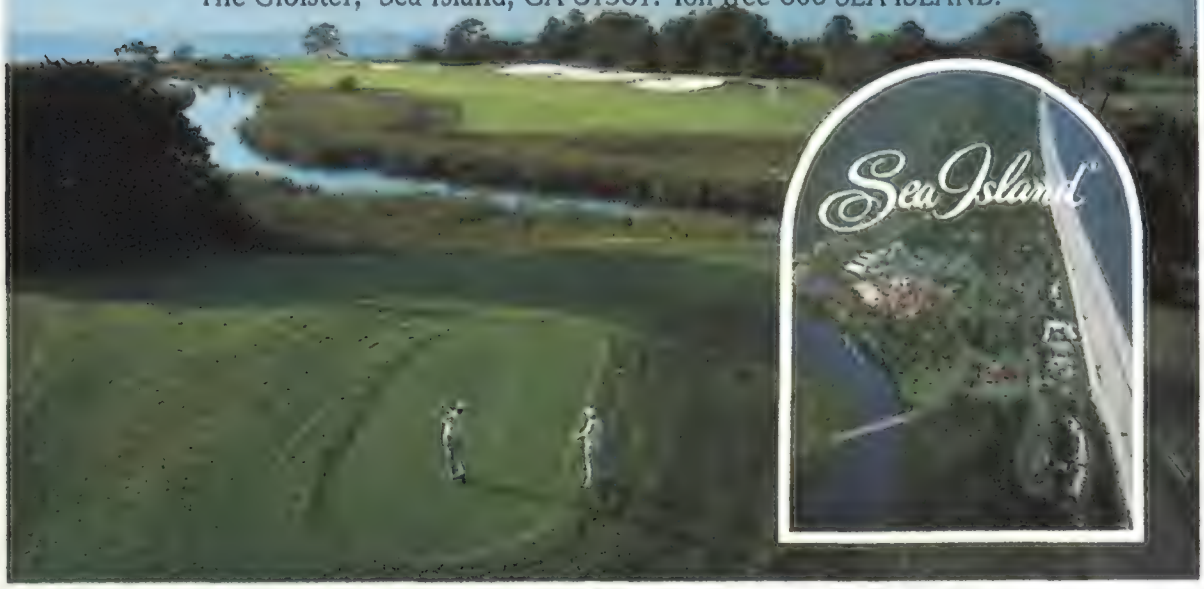

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Machine Age art (p. 156)

The Machine Age in America 1918-1941 by Richard Guy Wilson, Dianne H. Pilgrim and Dickran Tashjian (exhibition catalog), Brooklyn Museum in association with Harry N. Abrams, 1986

Abstract Painting and Sculpture in America, 1927-1944, edited by John R. Lane and Susan C. Larson, Museum of Art, Carnegie Institute and Harry N. Abrams, 1983

Culture as History: The Transformation of American Society in the Twentieth Century by Warren I. Susman, Pantheon Books (New York), 1984

Twentieth Century Limited: Industrial Design in America, 1925-1939 by Jeffrey L. Meikle, Temple University Press, 1979

Skyscraper Style: Art Deco New York by Cervin Robinson and Rosemarie Haag Bletter, Oxford University Press, 1975

Sparrow war (p. 174)

"Elliott Coues and the Sparrow War" by Michael J. Brodhead, *New England Quarterly*, September 1971

*The English Sparrow (*Passer domesticus*) in North America, Especially in its Relations to Agriculture* by Walter B. Barrows, U.S. Department of Agriculture, Government Printing Office, 1889

"On the Present Status of *Passer domesticus* in America" by Elliott Coues, in *The House Sparrow* by J. H. Gurney, William Wesley and Son (London), 1885

The House Sparrow by J.D. Summers-Smith, Collins (London), 1963

The House Sparrow at Home and Abroad by Thomas G. Gentry, Claxton, Remsen and Haffelfinger (Philadelphia), 1878

Perpetual motion (p. 193)

Perpetual Motion: The History of an Obsession by Arthur W.J.G. Ord-Hume, St. Martin's Press, 1977

"Perpetual Motion: Illusion and Reality" by Martin Gardner, Foote Prints (Foote Mineral Company, Exton, Pennsylvania), Vol. 47, No. 2, 1984

"Perpetual Notion" by Rebecca Pittman, *Regardies*, December 1985

"Perpetual Motion Machines" by Stanley W. Angrist, *Scientific American*, January 1968

"The Perpetual Search for Perpetual Motion" by Ken Alder, *American Heritage of Invention & Technology*, Vol. 2, No. 1, Summer 1986

"Newman's 'Energy Output' Machine Put to the Test" by Marjorie Sun, *Science*, July 11, 1986

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Smithsonian highlights

"The Wyeths: A Father and His Family" will lead off the third season of *Smithsonian World* this month. Airing November 19 at 8 P.M. on public television stations, the program is a reminiscence of life with artist N.C. Wyeth by his five children. Wyeth is widely known for his illustrations in *Treasure Island*, *Robinson Crusoe* and other young-people's classics published during the first half of this century. All of his children have carried on the creative tradition. One is a composer (whose music is used throughout the documentary), another an inventor. The other three are artists, including Andrew Wyeth, who discusses how his father trained him.

At the Air and Space Museum, a new multimedia planetarium show, "State of the Universe," premieres November 20. It will trace the great astronomical discoveries of past centuries and present the latest scientific theories about the origin of the Universe. There will be an admission fee; call 357-1663 for details.

Planning a Smithsonian visit?

What to see and do in the Smithsonian's 13 museums and zoo, how to get around and where to stay are among the topics covered in the Associates' Planning Packet. It's free: call or send a postcard to Associates' Reception Center, Smithsonian Institution, Washington, D.C. 20560; (202) 357-2700 or TDD for hearing impaired (202) 357-1729.

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Earth Views (through May 1987) See *Highlights continued.*
New Wings Over America (November 13; 7:30 P.M.; Langley Theater) Lecture by Harold Pareti, president of Presidential Airlines.
Space Pilots: Human or Computer? (November 1; 9:30 A.M.; Briefing Room) Monthly sky lecture by Paul Ceruzzi.

Renwick Gallery
Russia, The Land, The People: Russian Painting 1850-1910 (through January 5, 1987) More than 60 paintings from the State Tretyakov Gallery in Moscow and the State Russian Museum in Leningrad.

National Museum of American Art
James Rosenquist: Paintings 1961-1985 (through January 11, 1987).

Cooper-Hewitt Museum (New York)
Berlin 1900-1933: Architecture and Design (November 3-January 25, 1987) Architectural drawings and models, furniture, technical and industrial products and many other items.

Hirshhorn Museum & Sculpture Garden
Recent Acquisitions; 1983-1986 (November 17-March 1, 1987) Includes works by Siah Armajani, Leon Golub, Anselm Keifer and William T. Wiley.

National Museum of Natural History
Love of Nature (November 14-January 4, 1987) Watercolors of the flora and fauna of Brazil by the Demonte family of Rio de Janeiro.

Freer Gallery of Art
The Permanent Collection (Opens November 17) Varied selection of works featuring, especially, Chinese stone sculpture.

National Museum of American History
Engines of Change: The American Industrial Revolution 1790-1860 (Opens November 21) Permanent exhibition on the Industrial Revolution, beginning with a recreation of the Crystal Palace, ending with a thought-provoking film.

Lecture and Seminar Program

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Death-Defying Drama: A Journey to the North Pole (November 3; 8 P.M.) William Steger and Paul Schurke recount their journey.
Jason Miller reads Robinson Jeffers (November 9; 7:30 P.M.) International Poetry Forum evening.
Producers on Parade: The Emerging Theater in Washington (November 17; 8 P.M.) Bart Whiteman, Joy Zinoman and Howard Shalwitz in a symposium.
Roberta Peters (November 18; 7:30 P.M.) A special concert celebrating National Arts Week.
An Evening with Artist Julian Schnabel (November 24; 8 P.M.) Lecture by controversial New York painter.

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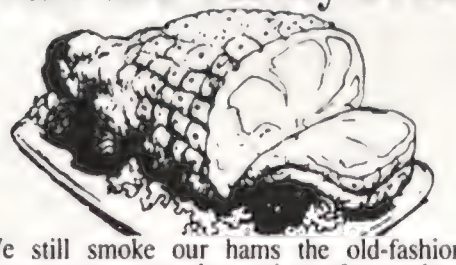

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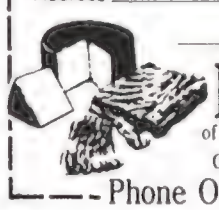

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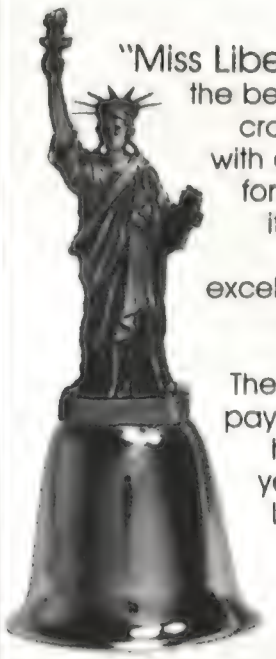

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Artists look down at Earth

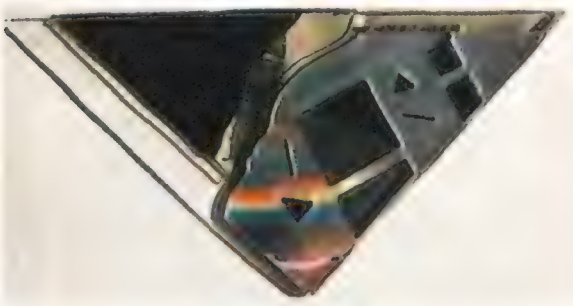
An exhibit at the Air and Space Museum shows countless ways our planet can be viewed from above

To celebrate the opening of its new permanent gallery called "Looking at Earth," the Air and Space Museum held an unusual competition. The new gallery documents the continual search for higher, clearer images of the Earth, and includes aerial cameras, reconnaissance photographs, satellite pictures and innovative craft. So the museum asked for artists of all kinds—jewelers, painters, glassblowers, sculptors—to submit works that represented their idea of Earth as seen from above. More than 600 entries arrived, from which 89 works were selected for exhibition. Six of the winning entries are shown on this page; they and the other artworks will be on display through next May in a show entitled "Earth Views."

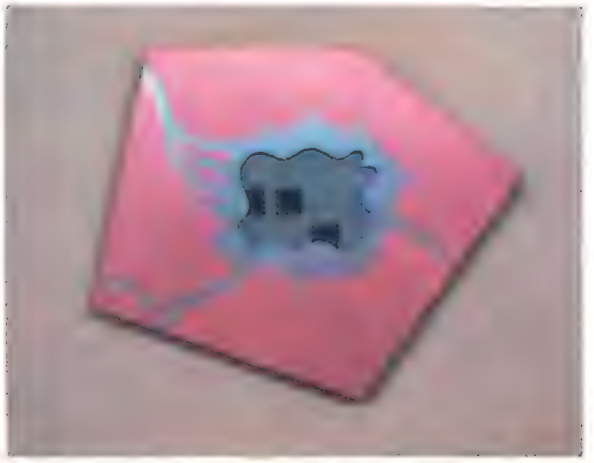
What is most interesting about the exhibit is the inventiveness with which materials were used to express the theme. Sand dunes frozen in porcelain and the hand-blown glass globe laced with satellite tracks are eerie evocations using traditional materials. But there is also no shortage of high tech: two works shown below capture the feeling of "spaceship Earth" with their use of titanium, laser disk, silicon wafers, an LCD panel and other artifacts of the future's past.
Constance Bond

Martha Gittelman's *Desert From Above II: Dunes of the Namib* is porcelain.

Winter Planes by Sandra Vander Mey of Iowa evokes geometry of landscape.



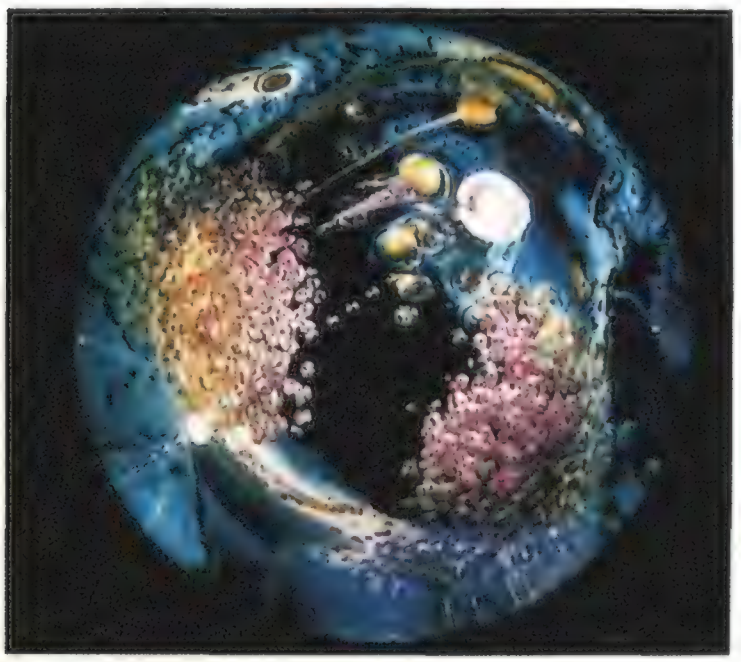
Josh Simpson's fragile glass globe is *Earth With Star Wars Defensive Satellites.*



Titanium, LCD panel give Vernon Reed's *Code Pool: Landsat-D* a high-tech look.

Dwain Naragon used porcelain to record seaside aerial view in *Beach Section.*

Winter's River: View from Above was stitched by Jeanette Turner Bowker.



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Hawaii February 7-19, February 21-March 5: Experience undersea wonders, great volcanoes, lush forests and whale watching.

Baja Whale Watch February 23-March 3 or March 3-11: Explore beauty of Baja California in company of gentle gray whales.

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Cajun Country April 5-13: Experience Louisiana—New Orleans jazz, Creole cooking, mysteries of the bayou.

Arizona in Spring April 12-20 or 22-30: Tour the Sonoran Desert and Chiricahua Mountains to see many species of unique Southwestern wildlife.

Big Bend April 14-23: Hike the spectacular canyon trails in this southwestern Texas wilderness park.

Delta Queen April 16-24: Take a steamboat journey into America's past on the lower Mississippi from New Orleans to Memphis.

New York May 14-17: Enjoy a weekend of architectural walking tours, elegant dining, Broadway theater and museum visits in the Big Apple.

New England and Hudson River May 30-June 13: Enjoy a leisurely cruise aboard the *Newport Clipper* through a beautiful Hudson River gorge and to historic ports from Boston to New York. Includes lectures and tours of Newport, Nantucket and Mystic Seaport.

Coming in June Cultural tours of Chicago and Montreal.

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Tanzania-Kenya Wildlife Safari January 23-February 11: A unique wildlife excursion featuring the best of East Africa.

Russia—Performing Arts January 31-February 14: Presenting the best of Russian theater, opera, dance and music in Moscow and Leningrad.

A Hike in New Zealand February 9-25: From Lake Te Anau to Milford Sound, discover wildflowers, crystalline lakes and snowcapped peaks on the Milford Track.

Yucatán Adventure February 12-24: Explore extraordinary Maya ruins in the company of a pre-Columbian archaeologist.

Costa Rica February 21-March 6: An expedition for nature enthusiasts to see flora, birds and wildlife in the American tropics.

Voyage to the Islands of the South Pacific February 21-March 10: Aboard the *Illiria*, travel from New Guinea to Fiji through three great island groups. Observe diverse cultures and traditional art; enjoy striking natural beauty.

Zapotec and Maya Mexico February 26-March 10: Traveling from the central highlands to the Yucatán Peninsula, discover ancient ruins and colonial cities.

Australia-New Zealand March 1-24: An intriguing introduction to the natural history and culture of the lands "down under."

The Valley of Mexico and El Tajín March 13-25: Sample rich, diverse cultures in and around Mexico City and Veracruz.

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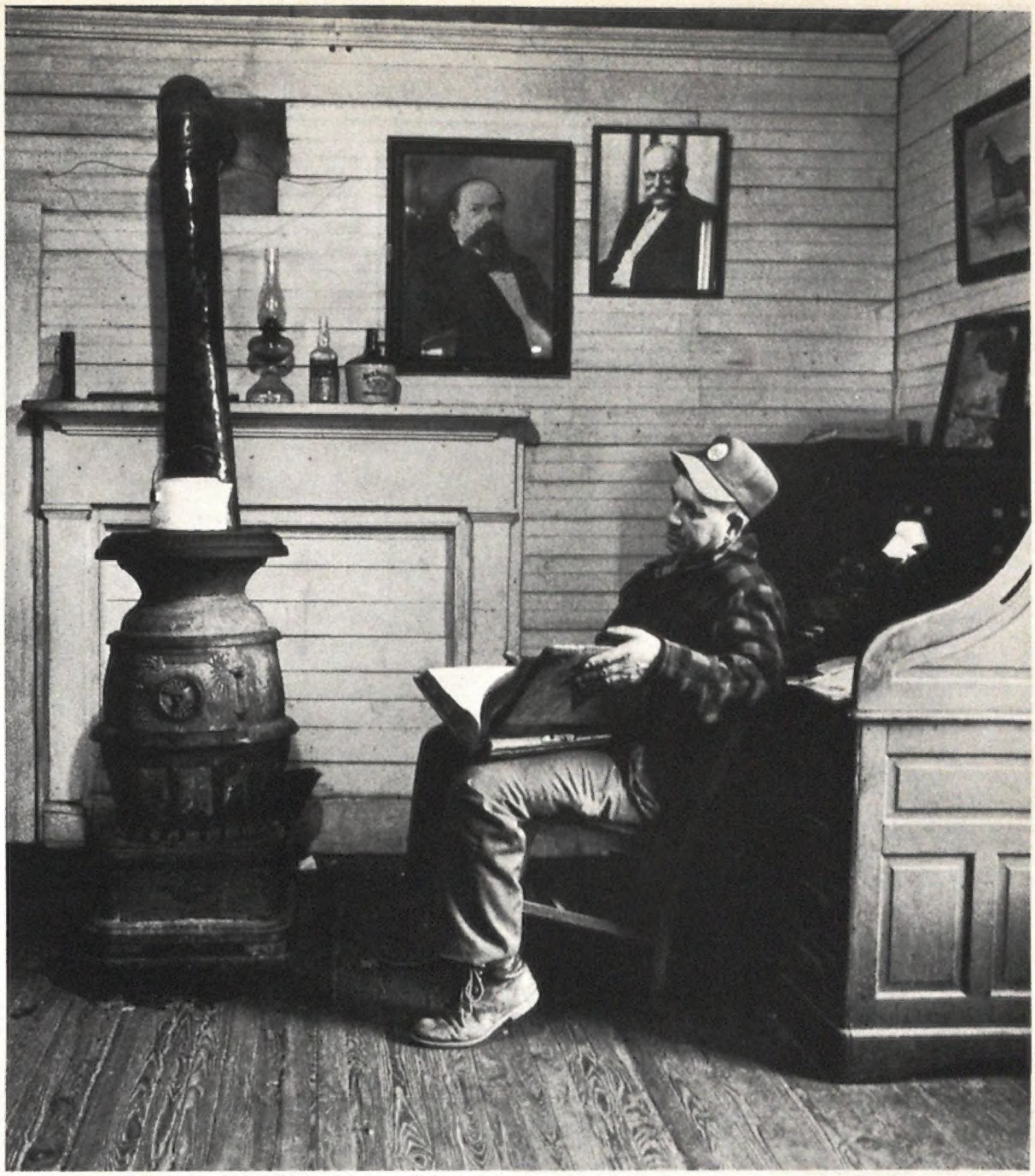

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CHARCOAL MELLOWED FOR SMOOTHNESS

By Timothy Foote

Sports afield with a golden receiver

If anybody should wander onto the back trails of Washington's Rock Creek Park and glimpse an apparently demented man clapping his hands together and shouting "Bravo! Bravo!" there's no need to reach for a stick or run. It'll be me. And if you look out ahead you will see a big golden retriever barreling along, with a kind of proud, shoulder-rolling trot, benignly seeming to conduct the world with her tail.

That'll be Pamela just after making an over-the-shoulder circus catch of a tennis ball. When she fetches it back she sometimes gets a bit of dog biscuit. Meanwhile, extravagant applause is in order, and "Bravo!"—which it took me a lot of time in Paris to learn to shout without feeling like a sap—does as well for dogs as divas.

The game we're playing is simple: at a hand gesture, the dog tears away into the middle distance; the man throws a tennis-ball pass; the dog snaffles it up on the first bounce at a dead run and proudly paces toward an imaginary end zone. It can be played on lawns, vacant lots, even (with caution) on the tops of aircraft carriers. But for pigskin fans and aging high school passers it is best and briskest if practiced during pro football season in the woods where—I'll be the first to admit it—successful completions require breathtaking accuracy and amazing eye-mouth coordination.

Indeed, it is sometimes hard not to think of Pamela as a kind of four-footed Drew Pearson (the wide receiver, that is). She's a lot quicker than Pearson, of course. Especially when it comes to that final lunge for the ball, a lightning forward strike of the head and neck, the kind of last-second, snaky stroke that in the water lets retrievers suddenly clamp down on an elusive duck.

What I throw these days is mostly long, high floaters that might put Walter Mitty in mind not of Pearson's teammate Roger Staubach but of Earl Morrall and the late Baltimore Colts.

By wonderful coincidence, that is just what the game calls for. If you want a long completion on a wooded path, you have to loft the ball up through tree branches, calculating to a nicety, so it will sail down to Earth without being deflected by leaves. Doing this is most challenging when the path ahead is twisty and the dog is running at full speed.

Winter is easier. Those arching throws float through the bare, black branches, to fall just ahead of the galloping receiver, sometimes bouncing so perfectly that she seems to inhale the ball going flat out. But sometimes she has to lunge to left or right, or leap to get the ball with all four feet off the ground like a sort of fur-trimmed flying carpet.

Of course I don't have to throw with hundreds of pounds of bone and muscle bearing down on me. But Pamela runs a gauntlet that is the moral equivalent of Redskin linebackers—hairpin turns in the path, bushes, stumps, brush piles, fallen trees. Imagine running flat out down a twisting path, as bumpy as the Mikado's billiard table, and then catching a ball in your mouth. In her situation, I figure, even a Pearson might poke out an eye on the end of some protruding stick or splatter himself against a tree (trees never get called for interference in our game).

What thrower does not remember passes thrown long or dropped by some other kid? But anything Pamela can lay a tooth on she can catch, even if she has to produce the kind of diving, rolling reception that you sometimes see made in the end zone, about ten inches off the ground, on a short, flat pass thrown after the receiver is already diving through the air.

If there is a sift of snow when she does that, she kicks up an explosion of powder and leaves, rolls over and grins. And the dog-loving passer is reminded of a famous trainer's line about great racehorses: "They run from the heart like children at play."

I fantasize at times about inventing Retriever Football-Tennis. Or even creating a Golden Baseball League with a designated hitter (human) and dogs fielding and running bases. (The late Bill Veeck would be the commissioner of choice.) Certainly Pamela would never hold out for more pay or threaten to play in Calgary next year.

She might chase squirrels, though. Her approach is as full of folly as Pickett's Charge. Any squirrel, no matter how far off, no matter how much cover she could use to stalk it, tends to bring a straight frontal assault. She would make a lousy tackler. Once a squirrel let her get between him and the only tree for 20 yards around. The squirrel just swung a hip to the right, drawing the gullible dog that way, then zipped past Pamela and up the tree. Alas, she has never heard my old coach (and math teacher) Tiny Nordstrom yelling "Follow the man, not the ball!"

The command "Drop it" she sometimes takes under advisement—hoping I will produce a scrap of dog biscuit. Sometimes, after a spectacular effort, as when, with a high bouncing ball, she bongs it up in the air with the tip of her nose first, like a seal, before making a showboat catch, I whistle her back to a huddle. I kneel. She sits. We talk in low tones about the next play. Sometimes I rub her ears and tell her she's the most beautiful and skillful dog in the world. This is no more than the truth, but she is always pleased to hear it. At such times she looks at me with total attention and loving brown eyes. Her glance, however, has a way of shifting toward the pocket where the biscuits are.

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